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PREMIER ISSUE

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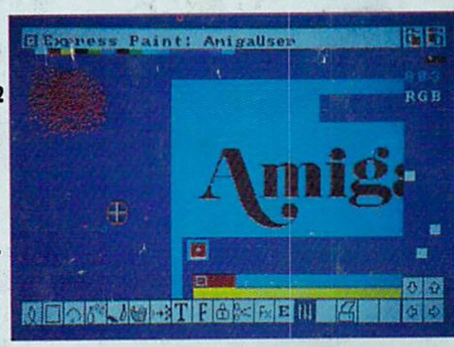


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- MICRON ONE MEG BOARD
- THE ACCOUNTANT
- PROFESSIONAL PAGE
- REASON
- EXPRESS PAINT 2.0

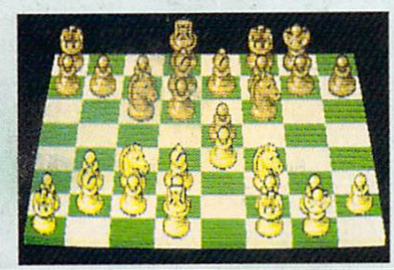
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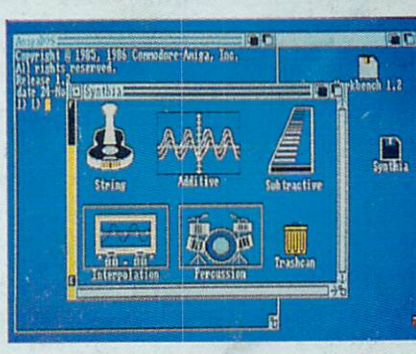
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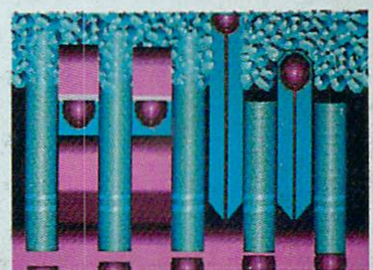
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Cover photography by Michael R. Davila and Morton Kevelson

ISSUE NO. 53 MAY 1988

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VIEW FROM THE BRIDGE

Someone once observed that there are two categories of people—those who divide things into two categories, and those who don't. As of this month, we at Ion International must consider ourselves in the former category. *Ahoy!*, which has covered Commodore computing since January 1984, has been divided into two magazines: *Ahoy!* for the C-64/128 owner, published 8 times a year, and *Ahoy!'s AmigaUser*, published 4 times a year.

As a result, this month we address two categories of readers: those Amiga owners who are picking us up for the first time, and those familiar with our four year old (and counting) commitment to serving the Commodore community. If you're in the former category, we hope you'll soon be in the latter.

And to make sure you wind up there, we've put together a first issue full of features that all belong in the same category—that of the absolute best we could extract from the staff of experts who've written for *Ahoy!'s* Amiga section since February 1987. Here are some of this issue's highlights:

• Morton Kevelson's exhaustive, exhausting analyses of hardware and software have won him acclaim as one of the industry's most thorough reviewers. Lend an ear this month as he explains the hardware and software aspects of Amiga sound generation, along with examining five top commercial releases. (Turn to page 40.)

• If you've just gotten into Amiga gaming, you've got a lot of catching up to do. No one is better suited to help you than Arnie Katz, considered computer entertainment's number one authority ever since he founded *Electronic Games* magazine about a century ago. Along with our other gaming specialists, he identifies the 24 titles that comprise *The Essential Amiga Entertainment Library.* (Turn to page 31.)

• While you're making up for lost gaming time, you can do the same with reading time, as Richard Herring provides thumbnail reviews of over 30 Amiga books. (Turn to page 81.)

• One of *Ahoy!'s* most popular features has long been *Tips Ahoy!*, consisting of the best reader-submitted hardware and software tips. Managing Editor Michael R. Davila will be overseeing a similar compendium in each *AmigaUser* issue. Just wait till you see the programming power that's waiting in the *Amiga Toolbox!* (Turn to page 23.)

• To keep 8-bit users up to date, we've tacked on an extra *C-64/128 Section,* offering reviews of recent software and hardware. (Turn to page 89.)

Please note that the next issue of *Ahoy!'s AmigaUser* will be the August edition, on sale July 5. Unless, of course, the response to our premier issue is so overwhelming that we're forced to bring another out sooner. Let us hear from you, at 212-239-0855, or *Ahoy!'s AmigaUser*, Ion International Inc., 45 West 34th Street—Suite 500, New York, NY 10001.

—David Allikas

FLIGHT SIMULATOR JOYSTICK • MEMORY BOARD • MIDI SEQUENCERS • AMIGADOS UTILITIES • DISK CASE • AMIGA CABINET • PROWRITE, GALILEO, MUSIC STUDIO UPGRADES • PUBLISHING GUIDE • GAMES FROM DIGITEK, AEGIS, SSI • GURU PROTECTION • HALF PRICE UPGRADES

AMIGA 500 CABINET

The Amiga 500 Command Center allows the user to store the computer's power supply and all connecting cables out of sight, as well as place two external drives, or one 3½" drive and one 20 or 30 megabyte hard drive, above and behind the keyboard for easy access. Also included are a built-in cooling fan, surge suppression, EMI noise filter, and a five outlet power strip with remote switches for control of individual system components. Optional accessories include a 20 or 30 megabyte hard drive, 1 or 2 megabyte internal RAM upgrade, replacement power supply, joystick extension cables, dust cover for the entire system, and a tilt/swivel monitor stand. Price is $179.95; or, $99.95 for the standard cabinet without the electrical components.

Ketek, Inc., 800-626-4582 or 319-338-7123 (see address list, page 14).



The color-coordinated Amiga 500 Command Center stores your computer, power supply, disk drives, and all wires.
READER SERVICE NO. 282

GURUBUSTER

G.O.M.F. 2.0 (that's short for Get Outta My Face) is the latest release of the error-handling routine that effectively eliminates "Guru Meditation Alert" messages by allowing the user to end an error-causing program and save data without having to reset the computer. When installed in the startup sequence of another program, Version 2.0 traps and removes errors that occur during that program's use, even the direct Guru Alert message. The program automatically configures itself to work on 68000, 68010, and 68020 based systems, and displays Help messages that describe what it's doing and prompt the user to perform the required steps. Price is $34.95.

Hypertek/Silicon Springs, 604-939-8235 (see address list, page 14).

GAMES

Ports of Call ($49.95) ships the player off to sea with a valuable cargo to be delivered around the world. Obstacles include icebergs, bad weather, military confrontations, and ships on kamikaze courses.

Aegis Development Inc., 213-392-9972 (see address list, page 14).

Two sequels from SSI:

Questron II ($49.95) begins where the first installment ended, with the player's character in possession of the Evil Book of Magic that was stolen from Mantor the magician. Because the book is so evil that it cannot be destroyed, the player's character must journey back in time to ensure that the book is never created. He must face over 60 different types of creatures in towns, cathedrals, forest, tombs, and dungeons, and fight them with weapons and magic spells including fireballs, sonic whine, and time sap.

Roadwar Europa ($44.95) transfers the highway hostilities of *Roadwar 2000* to the ETO, where post-doomsday Europe is held hostage by terrorists threatening to destroy five cities with nuclear devices. The United Nations has sent you, as leader of a gang equipped with cars, trucks, and motorcycles of your own design, to locate and disarm the five hidden bombs and then pinpoint and destroy the enemy's headquarters. Along the way, you'll battle mutants, cannibals, and rival road gangs. By fighting for new recruits, vehicles, supplies, and medicine, you'll maximize your chances for survival.

Both of the above are also available

for the C-64, at $39.95 each.

Strategic Simulations, 415-964-1353 (see address list, page 14).

The adult-oriented *Centerford Squares* ($29.95) matches you against a digitized opponent whose picture is covered by squares. You battle to win each of these strategically positioned squares. The more you win, the more your opponent reveals.

Artworx, 800-828-6573 or 716-385-6120 (see address list, page 14).

The Big Deal! ($34.95) brings back the robot star of *Floyd the Droid* in the role of a mechanical chef. By revising his programming, you help Floyd II prepare breakfast, lunch, and dinner orders.

DigiTek, Inc., 813-933-8023 (see address list, page 14).

Rallye Master ($29.95), a German import, lets one or two players race on 10 different tracks in quest of a gold or silver medal.

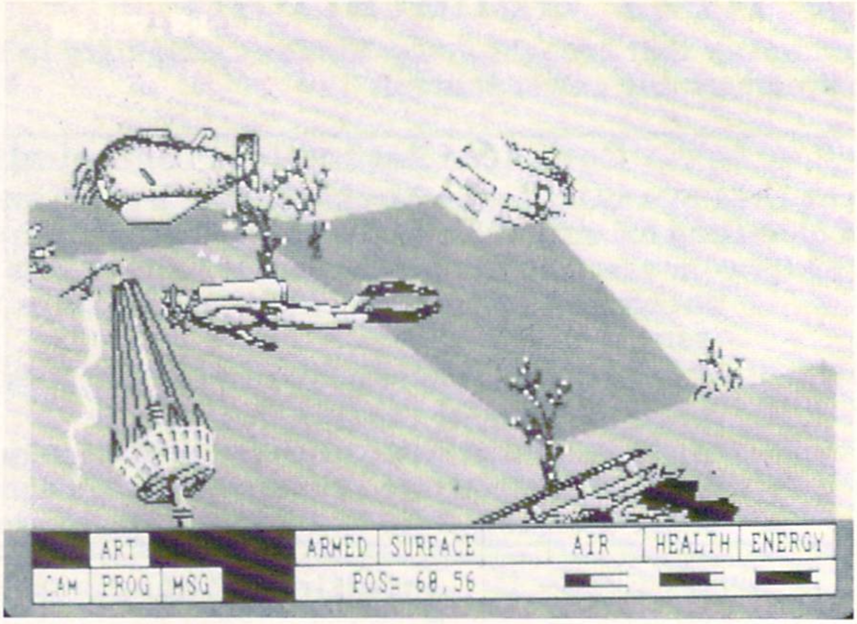
EAS of Canada Ltd., 604-923-5239 (see address list, page 14).

From Electronic Arts:

Return to Atlantis ($49.95) provides you, as an agent for an organization known as The Foundation, with 14 missions to complete. Each is a game in itself, taking you to the waters of exotic international locales from the Baltic to the Caribbean to the South Pacific. You'll gather clues through conversations with informants in the Sea Thief Cafe and utilize an assortment of high tech tools aboard the flying ship Viceroy, including a robot named RUF (Remote Underwater Friend) and ART, a shipboard computer. The missions are progressively more difficult, and each one leads you closer to the secret of Atlantis.

Alien Fires—2199 A.D. ($39.95) casts you as a novice Time Lord sent to the future in search of a missing scientist. To prove yourself worthy in the eyes of the Time Lord Elders you must find the scientist and destroy all traces of his time travel machine. You custom-design your character in terms of dexterity, diplomacy, quickness, fighting skill, and other attributes.

Interceptor ($49.95) lets you pilot an F-18 Hornet or F-16 Falcon on six missions that take place in the skies over the San Francisco Bay area. These include protecting Air Force One from enemy fighters as the President attempts to land, preventing World War III by shooting down incoming cruise missiles, and rescuing a pilot downed at sea.



The length, detail, and stereo sound of* Return to Atlantis *contribute to the two-disk program's movielike feel. ***READER SERVICE NO. 283***

World Tour Golf ($39.95) offers a choice of over 20 classic courses, or the user's customized fairway with hills, trees, bunkers, water hazards, slopes, and sandtraps placed as desired. Split screen graphics offer both overhead and golfer's-eye views.

Ferrari Formula One ($49.95) simulates a season in the Grand Prix racing circuit, as the player races against 7 drivers on 16 courses. A full pit and garage lets the racer adjust the car's suspension, tires, wings, gearing, and motor, try different fuel mixtures, and check aerodynamics.

The Bard's Tale II: The Destiny Knight expands upon its predecessor with 6 cities, 25 dungeon levels, and a complete wilderness. Seven timed puzzles provide extra challenge, as do the new spells, monsters, and hand-to-hand and long-range combat strategies.

Designed by Virgin Games and distributed by Electronic Arts, *Monopoly* ($39.99), the official computer version of the Parker Brothers board game, accommodates from two to eight players (human, computer, or any combination). The board is seen through a scrolling window as you move past each property on your turn. Immediate information is available on cash, property ownership, and buildings. Rent, trading, mortgage transactions, and the bank are all handled by the computer.

Electronic Arts, 415-571-7171 (see address list, page 14).

From MicroIllusions:

Land of Legends ($49.95) lets fantasy role players watch their adventurers battle monsters from an overhead perspective.

Ebonstar lets up to four players compete in the favorite sport of the 31st century: seeking out and destroying roving black holes. Over 50 levels of difficulty are included.

Playable against the computer, another person, or via modem, *Galactic Invasion* ($24.95) requires each side to invade the other's galaxy, capturing and destroying enemy satellite stations and collecting the materials to build the ultimate doomsday weapon.

Planetarium ($69.95) lets home astronomers view over 9000 stars from anywhere on the earth's surface. Information can be added as new discoveries are made.

(C-64 versions of the four MicroIllusions titles will be released in the spring.)

MicroIllusions, 800-522-2041 or 818-360-3715 (see address list, page 14).

PRO MUSIC PROGRAMS

For the professional musician:

The Roland MT-32 Editor/Librarian ($149) enables Amiga musicians to play any note, velocity, or controller via the mouse without touching the synthesizer. Randomize-mask of editable parameters and graphic envelope editing are supported, with all parameters of the instrument displayed.

Keyboard Controlled Sequencer V1.6 ($249) features rock steady timing, automated 48-track tape recorder mode, the ability to load 16 separate songs, built-in variations generator, full editing of all MIDI parameters, cut, copy, and paste editing, live editing, automated punch in and punch out in real time, cue and record from any point in a song, real time quantizing, and more.

Dr. T's Music Software, 617-244-6954 (see address list, page 14).

The *Music-X* sequencer ($299.95) features keyboard mapping that allows almost any function of the sequencer to be controlled from a MIDI keyboard, foot pedal, or other MIDI device. The software supports real-time recording of system-exclusive data, plus full graphic-oriented and event-oriented editing of sequences. Included is a configurable librarian that composers can "teach" to communicate with any MIDI instrument that outputs system-exclusive data.

Unless specified otherwise, all software and hardware listed in the *Scuttlebutt* section of *Ahoy!'s AmigaUser* is designed for the 512K Amiga 500, 1000, and 2000.

MicroIllusions, 800-522-2041 or 818-360-3715 (see address list, page 14).

NEW MUSIC

The Music Studio 2.0 ($79.95) adds more than 15 new features to the original, along with new instruments re-digitized to provide the best sound on the Amiga. Direct MIDI input is now available to assist in rapid placement of notes and chords, plus compatibility with devices for MIDI in and out with full parameter control. Additionally, Amiga musicians can now change tempo, volume, and key signature at any point in a song, play multiple songs, change note stem direction, merge songs, insert measure bars, and change duration for all notes of a specific duration.

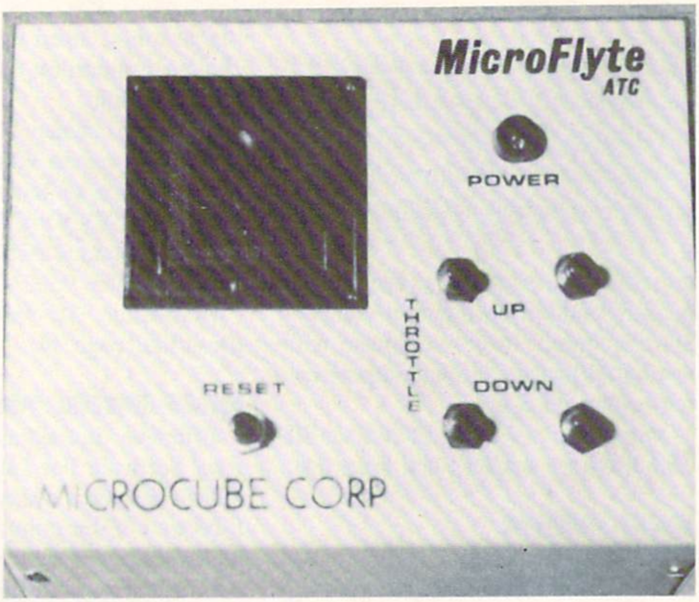
Registered owners of *The Music Studio* can upgrade to Version 2.0 by sending page one of their manual and a check for $33.50 (CA residents add 6.5% sales tax) to Activision, P.O. Box T, Gilroy, CA 95021-2249.

Activision, 415-960-0410 (see address list, page 14).

HALF PRICE PROGRAMS

Effective immediately, Electronic Arts' Software For Life Program will allow consumers who upgrade from an 8-bit to a 16-bit computer to upgrade their software for half price. If you send the manual cover from any Electronic Arts program you purchased for the C-64/128, Apple II, or Atari 400/800, you may order the version for the Amiga or other 16-bit computer for half price. For ordering information, call 800-245-4525, Monday through Friday from 8 a.m. to 5 p.m. Pacific Time (in CA, 800-562-1112; outside the US, 415-571-7171/ext. 555).

Electronic Arts, 415-571-7171 (see address list, page 14).



While most Amiga gamers won't pay $119.95 for a joystick, fans of flight simulations have always been a breed apart. The MicroFlyte controller offers three play modes. ***READER SERVICE NO. 284***

FULL METAL JOYSTICK

The MicroFlyte Joystick is a fully proportional, continuously variable joystick control designed for use with flight simulator programs. Built entirely of metal parts, the unit plugs into the mouse port and offers compatibility with all software that uses the mouse controller. Modes include Standard Pointer Control with variable speed (for games like *F-15 Strike Eagle*), Proportional Control (for use with *Flight Simulator II*), and Variable Sensitivity Adjustment Control. Price is $119.95 plus $4.00 shipping.

MicroCube Corporation (see address list, page 14).

DESKTOP GUIDE

Design for Desktop Publishing: A Guide to Layout and Typography on the Personal Computer covers the basics for fledgling personal publishers. Discussed are type distinctions, layout, tabular material, illustration, color, binding, characteristics of various paper, and other topics. Mini-lessons are offered on the aesthetics and pragmatics of design and layout, along with instructions for translating these concepts to the computer screen. Paperbound; $14.95.

Chronicle Books, 415-777-7240 (see address list, page 14).

UPGRADED WP

ProWrite 2.0 improves upon the original word processor with print merge, faster printing (up to 10 times), sideways and wide carriage printing, a 95,000-word spelling checker with support for a custom user dictionary, picture resizing, paragraph sorting, new paragraph formatting options (1½ line spacing, fixed line height, etc.), document information (number of words, lines, etc.), user-definable defaults, and user-settable screen colors. A smoothing option, when used with high resolution printers, produces letter quality results with any Amiga font. Cost of the upgrade to registered owners is $20.00.

New Horizons Software, 512-328-6650 (see address list, page 14).

MEMORY BOARD

Micron Technology has made available a newly configured single slot chassis and add-in memory board for the Amiga 1000. The chassis, encased within the Micron chassis that mounts externally on the 1000, comes with a proprietary interconnect card and its own wall-mount power supply. The chassis also provides pass-thru, allowing additional peripherals to be attached. The 1 megabyte version is priced at $500, and the 2 megabyte version at $600. The power supply can also be purchased separately for $50.

Micron Technology, Inc., 208-383-4000 (see address list, page 14).

MINDSCAPE PREMIUMS

Purchasers of *Gauntlet* (for the Amiga and C-64) and *Paperboy* (for the C-64) can participate in Mindscape's Power Players Club and Instant Win Game promotion. Included in each specially marked game package will be an Instant Win card, offering a chance to win an Atari stand-alone arcade game, one of five $500 Mindscape software libraries, or one of 1000 Mindscape Power Players T-shirts. All participants receive free membership in the Club.

Mindscape, Inc., 312-480-7667 (see address list, page 14).

AMIGA DOS DISK

Ultra DOS Utilities, Module I is the first of a three volume set of disk drive utilities for the Amiga. Included are high speed whole hard drive backup with multiformat feature, autoconfiguration to multi-hard drive systems, support for up to 8.5 metabytes of memory, fast double buffered file copy routine, and file backup by creation date, with "point and click" selection, and with "wild card" search patterns. The programs fully support multitask-

ing, work equally well with dual floppy drives as with a hard drive, and operate in the background rather than monopolizing the CPU to achieve speed. Price is $59.95; shipping and handling are free.

Free Spirit Software, Inc., 312-352-7323 (see address list, page 14).

AMIGA DATACASE

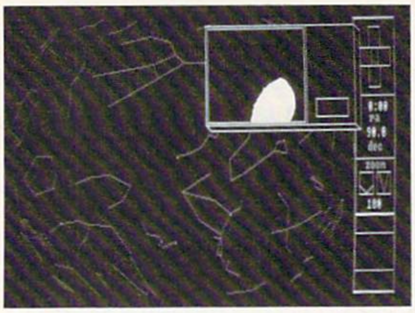
The Disk Tot'em carrying case holds up to 250 3½" disks, and features removable partitions that let you, if you prefer, carry an external disk drive and 130 disks, or your 8½ x 11" documents and 65 disks. There's also a removable tray that lets you take all your disks out of the case when convenient. Price is $39.95 plus $3.50 shipping; user group discounts are available.

Totem Technologies, 205-856-2437 (see address list, page 14).

For more information on products advertised or pictured in *Ahoy!'s Amiga-User,* refer to the Reader Service Card bound between pages 66 and 67.

Amiga owners who can't bear to leave home without their entire disk collection have the perfect solution in the Disk Tot'em carrying case, which stores 250 disks. Removable partitions let you bring an external drive, too. *READER SERVICE NO. 285*





Galileo 2.0 *dwarfs its predecessor.* *READER SERVICE NO. 287*

STAR UPDATE

Galileo 2.0 ($69.95) incorporates a number of enhancements to the original astronomy program, including more stars, point-and-click information about all stars displayed, increased screen updating, the ability to dump a screen to an IFF file, and the ability to create a user database. The first of a planned series of additional data disks has also been released – titled the *Yale Bright Star Data Disk* ($15.00), it adds 9100 stars, with information on distance, spectral class, magnitude, and more.

Infinity Software Inc., 415-420-1551 (see address list, page 14).

Companies Mentioned in Scuttlebutt

Contact manufacturers for further information.

Activision
2350 Bayshore Parkway
Mountain View, CA 94043
Phone: 415-960-0410

Aegis Development Inc.
2210 Wilshire Blvd., Ste. 277
Santa Monica, CA 90403
Phone: 213-392-9972

Artworx Software
1844 Penfield Road
Penfield, NY 14526
Phone: 800-828-6573 or
716-385-6120

Chronicle Books
One Hallidie Plaze
San Francisco, CA 94102
Phone: 415-777-7240

DigiTek, Inc.
10415 N. Florida Avenue
Tampa, FL 33612
Phone: 813-933-8023

Dr. T's Music Software
220 Boylston St., Ste. 306
Chestnut Hill, MA 02167
Phone: 617-244-6954

EAS of Canada Ltd.
1656 South Island Hwy.
Campbell River, B.C.
V9W 1B7 Canada
Phone: 604-923-5239

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Phone: 415-571-7171

Free Spirit Software
905 W. Hillgrove, Suite 6
LaGrange, IL 60525
Phone: 312-352-7323

Hypertek/Silicon Springs
#120 – 1140 Austin Ave.
Coquitlam, B.C.
V3K 3P5 Canada
Phone: 604-939-8235

Infinity Software, Inc.
1144 65th Street, Suite C
Emeryville, CA 94608
Phone: 415-420-1551

Ketek, Inc.
P.O. Box 203
Oakdale, IA 52319
Phone: 800-626-4582 or
319-338-7123

MicroCube Corporation
P.O. Box 488
Leesburg, VA 22075

MicroIllusions
17408 Chatsworth Street
Granada Hills, CA 91344
Phone: 800-522-2041 or
818-360-3715

Micron Technology, Inc.
2805 East Columbia Road
Boise, ID 83706
Phone: 208-383-4000

Mindscape, Inc.
3444 Dundee Road
Northbrook, IL 60062
Phone: 312-480-7667

New Horizons Software
P.O. Box 43167
Austin, TX 78745
Phone: 512-328-6650

Strategic Simulations
1046 N. Rengstorff Ave.
Mountain View, CA 94043
Phone: 415-964-1353

Totem Technologies
P.O. Box 374
Pinson, AL 35126
Phone: 205-856-2437



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Intellitype	$35
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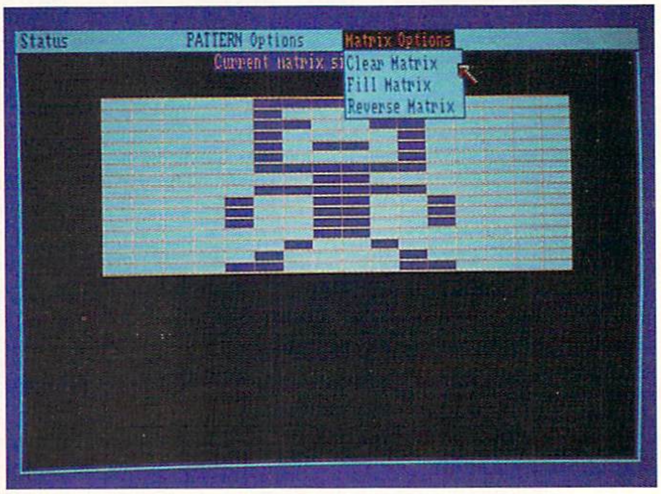
MATRIX PATTERN

Fill Pattern Editor with Automatic Data File Creation

By Michael R. Davila

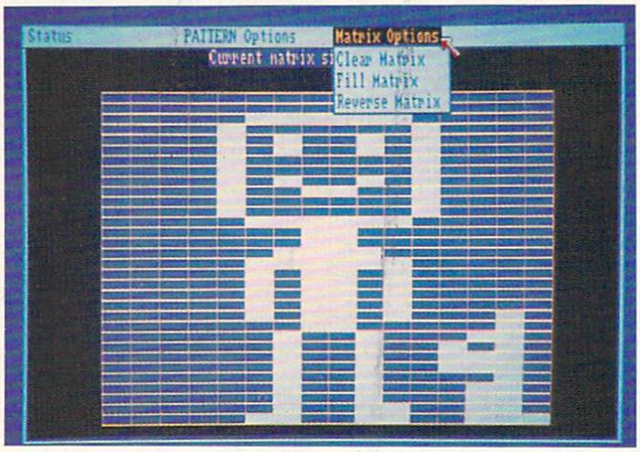
Now that you've invested in an Amiga, it's time to explore the power of Amiga BASIC. The Amiga has been blessed with one of the most powerful BASIC programming languages available on any personal home computer. Amiga BASIC developed by the Microsoft Corporation, was patterned after the original BASIC language, Microsoft BASIC. Amiga BASIC's commands constitute a full assemblage of powerful graphics instructions such as CIRCLE, DRAW, PAINT, and PALETTE, just to name a few. These BASIC commands, combined with the omnipotent hardware capabilities of the Amiga, elevate BASIC programming to levels never before reached on a personal computer. Even with these powerful graphics capabilities, programmers tend to overlook some of the more detailed commands of Amiga BASIC. One such graphic command is PATTERN.

The PATTERN command is used in conjunction with customizing line drawing and polygon or area flood fills. Syntax for the command is:

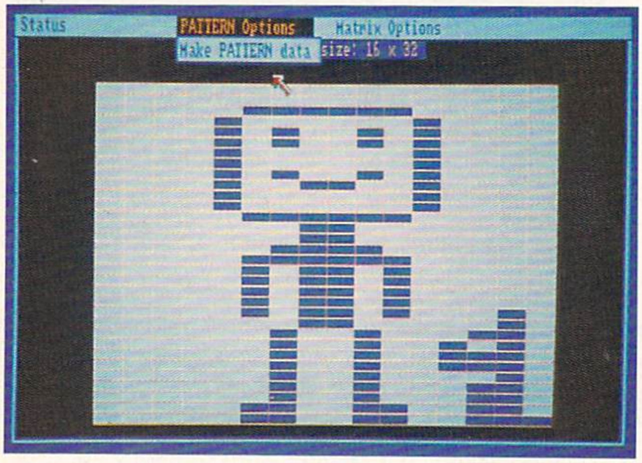


16 pixel high negative fill pattern (reverse mode)

PHOTOS: MICHAEL R. DAVILA



32 pixel high fill pattern created by **Matrix Pattern**



32 pixel high negative fill pattern (reverse mode)

```
PATTERN (LINE VALUE),(NAME %ARRAY)
```

where LINE VALUE is a 16-bit value, and NAME %ARRAY is an integer array that contains 16-bit values. The LINE VALUE will indicate what the pattern will look like in the individual line drawn. Each bit corresponds to a point in the pattern that is to be turned on or off. For example, if I wanted a pattern that had four bits on and four bits off, the bit pattern would look like "1111 0000 1111 0000". Changing this value to its hexadecimal and decimal equivalents produces F0F0 and 61680 respectively. Type in the following example from BASIC to illustrate the command:

```
PATTERN 61680&
LINE (50,100)-(150,100)
LINE (51,100)-(151,100)
```

The example draws two lines with the pattern we have just created. Notice that we must omit the ,(NAME %ARRAY) when creating a single line pattern. Also, we could have replaced the &HF0F0 in the pattern command with its decimal equivalent of 61680. This is strictly a matter of preference. To revert back to the Amiga's default pattern, type

```
PATTERN &HFFFF
```

This will turn all the off bits in the pattern on, and give you a solid line fill.

Next we will create an area fill pattern. This is where the integer array comes into play. Let's say we're trying to design a game which has a mountain range in it. We want

Continued on page 85

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FLOTSAM

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We all seem to have an opinion on software piracy. But it appears as if very few of us have any convictions.

You've heard it said that piracy is an inevitable problem with magnetic media. You may have heard someone say that it is simply a disease of availability and ease.

It is actually something quite worse, the mere side effect of a moral problem that runs straight into the heart of modern America.

We live in the "Age of Relativism," an era of amoralism, apathy, and narcissism. We are made to feel that morality is only a mental abstraction, that there is no good or evil, that we are all animals acting under the cloak of civilization, each in his own interests. This attitude permeates the whole of western media, including advertising, entertainment, and popular education. Unless you make a deliberate attempt to live differently, you will find these ideas engraved indelibly in your mind by the time you are of legal age, as surely as the value systems trickle down to the members of any culture through environmental and social pressure.

I know that it is for this reason that the primary questions raised about piracy by microcomputer owners always run along these lines: "Who can stop me?" "What do I have to fear in terms of punishment if I am caught?" "If software manufacturers want to stop piracy, then why do they charge such high prices?" "If copying is illegal, why do they permit copier programs to be sold?"

Nobody asks "Who could be so selfish?" or "What's wrong with young people that they cannot abstain from theft?"

Piracy is wrong. It shows contempt for the author, the software manufacturer, and for one's self. It demonstrates a lack of self-esteem, and a subtle disdain for the rights of others. All thieves have the same way of looking at the world: as a field to be harvested for their own benefit.

But we all live here together. Our society is held together, tentatively, by respect for one another and mutual obedience of the laws. If enough members of the society ignore the rules, the culture degenerates.

The next time you play an illegal copy of *Ultima,* ask yourself what it is about knights in armor that makes them so admirable to you that you would wish to emulate them through the miracle of computer software. Their great strength? Their skill? Perhaps their daring?

None of these. The enduring attraction of fairy tales is that the knights in them answer to a higher value system than ordinary men. They are brave, noble, chivalrous, trustworthy, and best of all, honest.

If only there were enough good guys to go around. In our modern world, it would seem as though the circle is growing narrower each moment.

The next time your buddy taps you on the shoulder with a disk in hand, just say NO. Put a stop to piracy by changing inside.

—Michael Blacksmith
Glendale, AZ

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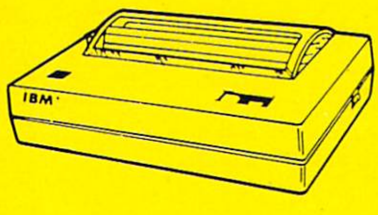
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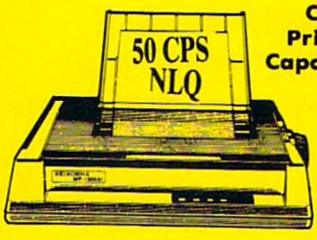
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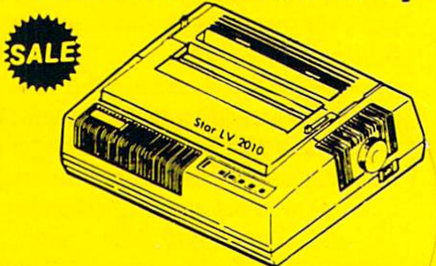
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AMIGA TOOLBOX

Compiled by Michael R. Davila

Send your best short routines and programming/hardware tips to *Amiga Toolbox,* c/o *Ahoy!'s AmigaUser,* Ion International, 45 West 34th Street–Suite 500, New York, NY 10001. Contributors will be compensated at competitive industry rates.

QUIZ

```
/* Quiz.c */
#include <stdio.h>

main(argc, argv)
INT argc;
char *argv[];
{
   char answer[3];
   IF(argc != 2) instruct(argv[0]);
   printf("Do you want to load %s (Y/N)? ", argv[1]);
   (void) GET_LINE(answer, 2);
   IF(toupper(answer[0]) == 'Y')
      EXIT(0);
   ELSE
      EXIT(5);
}

/* Provide instructions ON use */

instruct(NAME)
char *NAME;
{
   printf("\nThe command format is '%s program'", NAME);
   printf("\nWhere %s is the program name, and 'program' is the name of", NAME);
   printf("\nthe application we are going to ask if you want to run.\n", NAME);
   EXIT(0);
}
```

GETLINE

```
/* GET_a_Line.c */

#include <stdio.h>

GET_LINE(string, number)
char string[];
INT  number;
{
   INT  c, i = 0;                        /* Current char, count of chars. */
   WHILE ((c = getchar()) != '\n')
      IF (i < number - 1)
         string[i++] = c;
   string[i] = '\0';                     /* Terminate with null. */
   RETURN i;                             /* number of characters entered. */
}
```

QUIZ

This program will allow a command sequence file to ask a question and take action on that answer. To use this program, edit your startup-sequence file found in the S directory. Insert the program *Quiz* before the application to be run or skipped. Now save the modified startup-sequence file back to disk.

The format of the program is like this: 'quiz check', where check is a program that might be run if you answer 'y' to the question. What follows is an example startup-sequence file.

```
quiz check
IF NOT WARN
check
ENDIF
LoadWB
endcli
```

You will need to compile the program's quiz and getline. Then link them together and you're ready to run it.

An ideal use of this program is to save memory. As an example, suppose you normally run a resident utility and you have another program that needs every bit of memory you have, and then some. Well, with this program you can determine whether or not you will have that memory-resident utility loaded, thus insuring that you have ample memory for the larger program.

–Matthew P. Cummings
Moberly, MO

IFF GRAPHIC IDENTIFIER

If you're like most Amiga owners, you probably have created or assembled some type of graphic art collection on disk. Each of these masterpieces was most certainly produced or digitized with one of the popular commercial paint packages like *DeluxePaint, Digi-View,* or *Digi-Paint.* These packages read and save their images as Interchange File Format (IFF) files. This gives us the capability to load an image that was created with *DeluxePaint* from *Digi-Paint.*

The following routine written in Amiga BASIC will read an IFF graphic file and determine what screen resolution it is using. The program works by locating the screen resolution bytes within the BitMap HeaDer (BMHD) of the IFF file. Use it in your own Amiga BASIC programs to identify the resolution of your IFF graphic files.

–Michael R. Davila

```
Getit:
 CLS : INPUT"Enter IFF graphic filename: ",nam$
 IF nam$="" THEN Getit
 OPEN nam$ FOR INPUT AS 1
Readdata:
 nextbyte = nextbyte + 1
 value$ = INPUT$(4,1)
 IF value$="BMHD" THEN
   junk$ = INPUT$(4,1)
   horz$ = INPUT$(2,1)
   horz = CVI(horz$)
   vert$ = INPUT$(2,1)
   vert = CVI(vert$)
   CLS
   PRINT"IFF graphic file "CHR$(34)nam$CHR$(34);
   PRINT" has a horizontal resolution of"horz
   PRINT"and a vertical resolution of"vert
  CLOSE 1 : END
  END IF
 IF value$<>"FORM" AND nextbyte=1 THEN NotIFF
 GOTO Readdata
NotIFF:
 CLS
 PRINT nam$" is not an IFF graphic file!"
 CLOSE 1 : END
```

```
/* Spool.c */

#include "lattice/stdio.h"
char *printer = "prt:";
char *device = "ram:temp.txt";

main(argc, argv)
int  argc;
char *argv[];
{
   int   flag;
   if (argc < 2 || argc > 3)
      instruct(argv[0]);
   else {
      flag = strncmp(argv[1], "-f", 2);      /* flag will = 0 if -f used */
      if (argc > 2 && flag != 0)             /* check for valid # of args */
         instruct(argv[0]);
   }
   if (!flag) {
      if (!copy_file(argv[2], device, flag)) /* if -f specified use this */
         quit();
   }
   else
      if (!copy_file(argv[1], device, flag)) /* Otherwise use this */
         quit();
   if (!copy_file(device, printer, flag))
      quit();
   if (remove(device)) {
      printf("\nCould not remove temporary ram file.\n");
      exit(10);
   }
   exit(0);
}
int copy_file(source, dest, flag)       /* flag is for the formfeed -f */
char  *source,
      *dest;
int   flag;
{
   int  c;
   FILE *sfp, *dfp;
   if ((sfp = fopen(source, "r")) == NULL)
      printf("\nCouldn't open %s\n", source);
   else {
      if ((dfp = fopen(dest, "w")) == NULL)
         printf("\nCouldn't open %s\n", dest);
      else {
         while ((c = getc(sfp)) != EOF)      /* Copy file bit by bit */
            putc(c, dfp);                    /* to destination. */
         if (strncmp(dest, printer, 3)) {    /* If dest. is ram, check */
            if (!flag)                       /* if -f was specified, if is */
               putc('\f', dfp);              /* add a formfeed to file. */

         }
         (void) fclose(dfp);
      }
      (void) fclose(sfp);
   }
   return sfp && dfp;                        /* Return a 0 if error */
}
instruct(name)                               /* Instructions for usage */
char *name;
{
   printf("\nUsage is %s [option] [filename]", name);
   printf("\nWhere [option] is [-f] for a formfeed after printout.");
   printf("\nExample:");
   printf("\n%s -f Matthew.Cummings", name);
   printf("\n%s Matthew.Cummings\n", name);
   exit(5);
}
quit()                                       /* Stop program execution */
{
   printf("Terminating program.\n");
   exit(0);
}
```

PRINT SPOOLER

Print Spooler will copy a source file to RAM and from there to the printer. The printer may be any one supported by Preferences. The reason for the spooler operating in this fashion is to allow a person to remove the disk the source file is on. The name of the source code for this program is spool.c and when compiling, you should use the same name.

To run *Print Spooler*, first make sure that the spool program is on the Workbench disk. I would suggest placing it in the C directory. If it's not on the Workbench, you may get a requestor asking you to reinsert the Workbench disk when you run *Print Spooler* the first time. Then type the command RUN SPOOL [FILENAME], or RUN SPOOL [-F] [FILENAME], where [FILENAME] is the source file name, and [-F] adds a formfeed to the end of the printout. The command RUN prefaces SPOOL so that *Print Spooler* will not tie up the CLI it was run from; it's not necessary to use RUN.

When run, argv[ ] will contain the options and the filename. Variable argc will contain the number of arguments used. This is how we determine if too many files were specified. Argument argv[ ] is parsed, and the file name is passed to the function copy_file along with the device name and a flag. The device name is a temporary RAM file, and the flag is set to zero if you want to formfeed after the printout. The procedure copy_file also doubles as the function that copies that temporary RAM file to the printer. This is done by changing the arguments you pass to it. This function returns a value to main, which can vary on whether or not it was successful in opening the files. The returned value is used in error checking.

The instruct function provides instructions on how to run *Print Spooler*. This function is only entered if an incorrect usage occurs, such as if more than one filename is used or the options are used wrongly. This function is passed the name used to invoke *Print Spooler*, and uses it as part of the instructions. This way if the program's name is changed, the instructions change with it.

—Matthew P. Cummings
Moberly, MO

EYE ON CLI

Understanding and Using the Command Line Interface

By Richard Herring

DIR DIRECTIONS

Recent, totally unscientific polls (all respondents were computer-generated) show DIR to be the most-used DOS command in all computerdom. We check our disk directories again and again to make sure our files are still there.

In AmigaDOS, DIR may be at once the most used and most underutilized command. We all use DIR to see the files in the current directory of the logged drive. We even use DIR :C to check the contents of a specific directory and DIR DF1: to check another drive. But for many of us, that's it.

Well, it's time to get a little more sophisticated with DIR and start using OPTions. DIR OPT A will list each directory (including the directory you're in and any directories it contains) followed immediately by the files in it. You can modify this command to make sure you see everything from the root directory down by entering DIR : OPT A. The colon stands for the root.

Or if you're tired of listing the directory of your WorkBench disk and watching as the filenames push the directory names off the top of the screen, use DIR OPT D to display only directory names.

Amiga owners with only one drive will appreciate the DIR ? command. Type this from the CLI with the WorkBench disk in the drive. Your Amiga will load the DIR command but will not execute it. Instead, it will respond with DIR,OPT/K:. You can then change disks, hit RETURN, and get the directory of the second disk without even knowing its name.

Unlike the other computers, the DIR commands of Amiga's DIR command can interact with you. Type DIR OPT I and the first directory (or file if there are no directories) on your disk will be listed to the screen followed by a question mark. You go on to the next directory (or file) by hitting RETURN, so you can step through the directory listing one entry at a time.

But wait. What if you want to see the files in one of those directories? At the ? prompt, just type E to "enter" the directory and list its files (or subdirectories) one at a time. If you find the file you are looking for in that directory, you might like to skip the rest of the files and go on to the next directory. Just type B for "back."

Maybe you're not sure this is the right file, though. Is this the letter where you ordered the steak knives or the home surgery kit? Hit T to "type" the file to your screen. Unless your reading habits are bizarre, you'll want to do this with text files and skip the program files. Tapping the spacebar will pause the listing, CTRL-X (or backspace) will resume it, and CTRL-C will discontinue the listing.

If you find an empty directory or a file that you don't want, you can delete it by typing DEL at the ? prompt. And if you are only halfway through the disk when Max Headroom comes on, you can "quit" interactive mode by typing Q.

All this interactive stuff is swell but too much to remember, right? Well, kick into interactive mode (remember DIR OPT I) and type ? in response to the ? prompt. AmigaDOS will list the options for you.

NEXT ON OUR LIST

Now that we've finished with DIR, we'll see how to live without it. If you mostly do simple directory listings and don't appreciate the power of DIR's OPTions, you can use LIST instead.

The LIST command, like DIR, will display the directory of a disk. LIST is unlike DIR, however, in at least four important ways.

First, LIST gives valuable information about your files. For each file, you will see the size in bytes, the protection status, and the date and time the file was created or last updated. Protection status is typically shown as *rwed*, meaning that the file is available for being Read from, Written to, Executed, or Deleted. (The PROTECT command is used to turn these flags on and off. AmigaDOS itself only attends to the "delete" status of the file, but other programs use the remaining flags.)

For any subdirectories in the current directory, you will see the label DIR instead of a file size. LIST will only display the name and date of the directory you are in. At the end of the list is a summary totaling the number of files, directories, and disk blocks used by those files (but not by the files in the subdirectories).

The value of all this information is untold. Can't figure out from DIR which version of a document or program is the latest from the weird filenames you assigned? Use LIST to check the dates. Worried about how much room is on this disk? Use LIST to find the biggest junk file to delete. And LIST is almost as fast as DIR.

Second, LIST does not alphabetize or separate directory and file names. Instead, it displays them in the natural order they were placed in on the diskette. You can still get a sorted directory with all of LIST's information. By LISTing the directory to a file (with LIST's TO option), sorting the file, and then typing it, you can see an alphabetized directory with all of LIST's additional information. Try:

```
LIST TO UDIR (for Unsorted DIRectory)
SORT UDIR SDIR
TYPE SDIR (for Sorted DIRectory)
```

This file, SDIR, can be edited with a word processing program or printed.

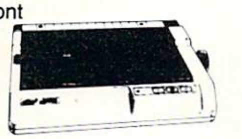
If you do not plan to edit the listing, you can tell SORT to send it directly to your printer. Try:

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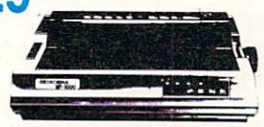
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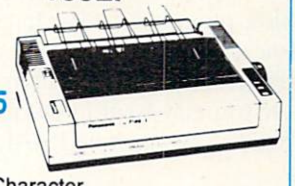
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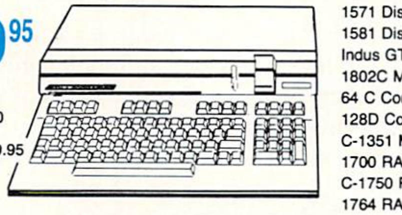
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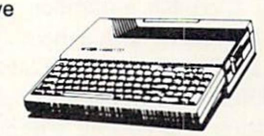
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```
LIST TO UDIR
SORT UDIR PRT:
```

A printed listing like this is great to store with any disks of utilities, programs in development, or word processor/spreadsheet files that you don't use very often. If this is a working disk, you may want to delete SDIR when you're done. Or you may want to put these directory listing files in the ramdisk by inserting RAM: in front of each filename above.

A third difference between LIST and DIR is that LIST uses a full line for each file, where DIR lists filenames in columns—two filenames to a line. 44 filenames will fit on a single screen with DIR. With LIST, many names will scroll off the top of the screen. (You can, of course, pause/restart the scrolling with the spacebar/backspace or by pressing/releasing the right mouse button. When you have already spied the file you are looking for in a long directory, you can stop—or break—the listing by holding down the CTRL key and pressing C. LIST is still graceful enough to give the total number of files and directories it has displayed so far.)

If you have used FILENOTE to attach comments to your files, LIST will eat up even more screen. Each comment (preceded by a colon) uses the line below the filename, so you may see as few as 10 files per screen. A single file listing will look like:

```
textfilel          59088 rwed 15-Feb-88 16:30:05
: A sample file for testing printer functions.
```

Fourth, and most problematic, directories created by LIST do not display the contents of nested subdirectories. You see the file and directory names contained in the directory you are in. You do have the option of specifying a directory name after LIST to see the contents of that directory, like: LIST SYSTEM. But you cannot see the contents of the directory you're in and the contents of that other directory with a single LIST command. Just like listing the files in another directory, you can list the files on another disk with LIST DISKNAME: (note the colon).

Like DIR, LIST has a number of options to increase its usefulness. Try LIST ? to see them. You'll see DIR,P=PAT/K,KEYS/S,DATES/S,NODATES/S,TO/K,S/K,SINCE/K,UPTO/K,QUICK/S:. Immediately after the colon, you can enter the option you choose without retyping LIST. The commands followed by /K all need the user to provide an argument (a filename or date). Those followed by /S work without any further user input.

The DIR option stands for the name of a file, directory, or disk. LIST will give its info about a single file if you type a filename. P and S are options that will list files with similar names. LIST P BUD#? will list all files and subdirectories in the current directory that begin with "BUD." The wildcard "#?" tells LIST to match any characters that appear after "BUD" no matter how many characters there are or what they are. Follow S by any string of characters and LIST will find all file and subdirectory names containing that string. LIST S IF will find files called IF, ENDIF, BIFF, etc.

(It does not matter whether you type filenames in upper or lower case letters. Although the Amiga saves your filename exactly the way you type it, the computer will match filenames regardless of capitalization. A file called Budget, BUDGET, or bUdGeT will be found by list budget. Because of this, you should not try to use filenames that are identical, except for capitalization, on the same disk—one will overwrite the other.)

UPTO and SINCE also list subsets of the files and subdirectories in the current directory. LIST UPTO 31-Dec-87 gives all files created on or before the last day of last year. LIST SINCE 1-Jan-88 gives all of this year's files. Note that both options list files that match the date you specified, so a LIST UPTO some date and a LIST SINCE the same date will both display all files created or updated on the date specified.

With the P, S, UPTO, and SINCE options you can use either a space or "=" between the option and the argument. LIST P #?.DOC is the same as LIST P=#?.DOC.

KEYS adds another column of information to the LIST display. After the filename, you'll see the block number of the file header or directory. The block number is enclosed in brackets so you can distinguish it from the file size in the next column. If you're "exploring" a disk, this is handy information. AmigaDOS assigns every file and directory a unique block number so it can keep them straight.

QUICK will produce a list without the file size, protection status, date, time, or comment. LIST QUICK will display only the unalphabetized names of the files and subdirectories in the current directory.

NODATES is a scaled down QUICK. It will kill date and time, leaving only size, protection status, and comment for each filename. The DATES option will force the date and time to list. But LIST automatically displays date and time, so why include an option to display them? To give the user control. LIST QUICK DATES will display only filename, date, and time, omitting file size, protection status, and comment.

If you enter a date in the wrong format after the DATES or NODATES option, LIST will simply ignore the option and execute the remaining portion of the command. (Dates are typically entered in the dd-mmm-yy format. That's the number of the day, the three-letter abbreviation of the month, and the last two digits of the year. Dates can also be entered as "today," "yesterday," "tomorrow," or the day of the week.)

Using these LIST options allows you to demand just the directory listing format you want. Whether you save that directory listing to a file that you can edit to your heart's content or print it to keep in a notebook, you call for the information that is valuable to you. □

Eye on CLI is not a one-way street. Send your own creative, novel, innovative, and otherwise brilliant CLI tip to me (P.O. Box 1544, Tallahassee, FL 32302). If your tip is one I have not seen before, you'll receive a free disk of public domain Amiga software. Mention what you'd like and I'll send it or something similar.

EXEC FILE

Software and Applications for the Small Businessman

By Ted Salamone

Amiga entrepreneurs take note! This is the first installment of a column that will live, breathe, and succeed in the real world. Besides thumbnail product reviews based on actual use in my office environment, we will explore ways you can use your Amiga to run your business and help your creative juices flow. Along the way I'll pass along general tips, new and better ways of using Amiga products, and ideas for streamlining business and artistic processes.

This will be as much your column as mine. Send me your business and creative computing problems; I'll analyze those that have the broadest appeal and offer software and hardware solutions. Tell me what you're doing with your Amiga, and, more important, what you would like to do. Let me know what you want in the way of software and hardware; and don't forget to pass along tips and tales of woe. Forward all correspondence to Salamone & Associates, 42 Canterbury Road, Bridgeport, CT 06606.

REVIEWS

The *B.E.S.T. Business Management System* (version 2.0) is an integrated application composed of Accounts Receivable, Accounts Payable, General Ledger, Inventory Control, Service Control, Order Entry, Billing, Purchasing, and Point of Sale (POS) modules. A Report Writer wraps around each module, allowing users easy access to all the data stored within. Unlike other integrated systems, this one offers an amazing level of power and a surprising number of truly useful features.

Despite its all-encompassing nature, the *B.E.S.T. System* is easy to learn and even easier to use. The manual is a mirror image of the application; the writing is lucid, and the support impeccable. The screens and program flow are logically designed and executed. The error trapping is first rate; it's difficult to make the program bomb. This product has proved itself in almost daily use. When someone puts a program together this well, they deserve all the credit in the world. Contact B.E.S.T. at 800-368-BEST.

On the other hand, when someone markets a product as stable as the Middle East, they deserve to be boiled in oil. Which brings us to Versasoft's *dbMAN* (v. 3.0), an Amiga database ported from the MS-DOS world. It's touted as being *dBASE II*-compatible, powerful, and full-featured.

Well, *dBASE III* has been out for years, so the supposed compatibility has nothing to do with the current version of *dBASE*. Furthermore, *dBASE IV* is almost ready for release. Another bone of contention lies with the level of compatibility—it's not 100%, or anywhere close enough to make switching to/using *dbMAN* worth the effort and expense.

At least the application is full-featured. It's not very Amiga-specific, but it does have a lengthy list of commands. To counteract the prevalence of MS-DOSitis, Versasoft created a shell which can be activated from within *dbMAN*. This shell makes use of the mouse and pull-down menus, freeing users from the command line interface.

Sounds like it's getting better? It's not! The only thing that crashes more often than the stock market is *dbMAN*, and the only thing worse than that is its shell routine. Most often a crash prevents access to the database that was open at the time. It still occupies disk space, but it cannot be accessed via normal means.

This is the stuff migraines are made of. Stay away from this one, far away.

In case you need a database, I can personally recommend a unique product known as *MicroFiche Filer*. Produced by Software Visions (617-877-1266), it brings the microfiche metaphor to computers. Instead of a Rolodex card or an invisible file with data, *MFF* stores and displays data in the form of a sheet of paper, the contents of which are reduced. Users drag a software magnifying glass over a specific record to access the info. Data can be instantly reorganized by dropping in prebuilt sorting templates. The same goes for hardcopy reports. There are almost no capacity limits, it is definitely an Amiga product, and it can store, retrieve, and manipulate pictures as easily as it handles text.

Though I use it for a relatively light task—to track my compact disc, tape, and record collections—by making use of its inherent speed and ability to access up to 8 megs of RAM you will find it quite capable of handling much larger chores. Its weakest areas involve the limited number of sorting parameters which can be strung together simultaneously and the sometimes confusing manual. However, the latter problem is somewhat mitigated by the intuitive nature of the program.

TIPS 'N' TRICKS

This month we'll take a look at style sheets and the automatic loading of those style sheets when booting *WordPerfect*. Then we'll pass along a way to add extra tax jurisdictions to B.E.S.T.'s *Business Management* system.

First, a style sheet is nothing more than a predefined format. Users can create their own style sheets within *WP* by accessing its macro function (CTRL-F10 pressed simultaneously). Once pressed, *WP* records keyboard commands, mouse clicks, and text entry until CTRL-F10 is pressed again. An amazing variety of options are available, including the ability to interactively tailor the text entered from the keyboard, all while the style sheet is being created.

As an example we will create a style sheet which sets up parallel columns, a type of page format useful for reviewing related information line by line across a page. In this case, we are setting up an inventory report with the following columns: Item, Location, Amount, and Comments.

Press CTRL-F10, name the macro INV1, and press RETURN. Press RETURN twice, press TAB twice, type DATE:, and press SHIFT-ESC (the last command pauses

the macro so you can enter the current date during macro execution). Press RETURN to end the macro pause (you do not have to enter anything at this time) and press RETURN twice, followed by TAB twice. Then enter YOUR COMPANY NAME and press RETURN three times.

Space the column headings (Item, etc.) as desired and press RETURN twice. Next we will set up the parallel columns. Place the cursor where you want the first column to start. Press ALT-F7, then select option 4, column definition. Type N so *WP* will allow you to define individual column widths. Select Parallel with Block Protect (option 2) to define the column type. Enter 4 to designate the number of columns. *WP* will suggest column margins; press RETURN to accept each or override the suggestion with spacing of your own. Complete each margin entry with a press of the RETURN key. Finally, choose option 3 (columns on/off) to start the columns. Press SHIFT-ESC to pause the macro, awaiting keyboard entry of the information to fill the columns. (Again, you do not have to actually enter anything at this time.) Press RETURN to end the macro pause. Then, press ALT-F7 and once again select columns on/off (option 3).

Press CTRL-F10 to turn off the macro recording feature. That's what it takes to make a relatively involved style sheet. Now to make the style sheet active immediately upon entering *WP*. From the CLI type WP -m INV1 and press RETURN. *WordPerfect* will now boot and the INV1 macro will execute immediately—a great timesaver if there ever was one. It also insures the integrity of the report format.

Now on to the B.E.S.T. the Amiga has to offer. To charge multiple taxes (sales, excise, value added, etc.), access SETUP on the master menu, select SYSTEM INTERFACE, and leave the SALES TAX % field blank.

Next choose SERVICES from the master menu and select SET UP SERVICES GROUPS. In the SERVICE GROUP column build a series of two character tax code identifiers. Create a unique code for each type of tax which can be imposed. (T1, T2, etc. are good examples.)

In the DESCRIPTION column enter a definition for each tax code: CT Sales Tax for T1, Federal Excise Tax for T2, and so on. By doing so you will be simultaneously naming the General Ledger account to which these taxes will be accrued.

Under the SALES column enter the number of the General Ledger account to which you want to accumulate the tax, per tax code identifier. Remember, you are crediting this account, so make sure the General Ledger account is a credit type account.

In the SALES RETURN column type the General Ledger tax refund account number. This is always a debit account. Once that is accomplished click on SAVE, then DONE.

From the SERVICES menu select ADD NEW SERVICES. After SERVICE # enter a unique number, preferably the same characters used to identify the tax codes (T1, T2 in this case). Enter a descriptive phrase of the tax after the DESC field. This is the phrase that will print in customer invoices, so make it clear and concise.

To explain matters so far: the Service Group Number entered on the ADD NEW SERVICES screen is the number in the SERVICES MANAGEMENT function under which the taxes will be grouped. If all taxes are assigned the same two character code they will be combined into one total by the Service Group number assigned. If each tax is assigned a unique two character code, they will be totaled individually, but will still be grouped by the Service Group number.

After Rate enter the amount of the tax that is to be charged for the Service Number and Description. The tax rate must be entered in a decimal format—7% must be entered as .07.

For these types of taxes (generally sales and excise) you do not have to enter anything in the Person and Unit of Measure fields.

The quantities sold are automatically accumulated, based on the amounts that were taxed during the time periods displayed. The Sales category is likewise accumulated being the total amount of the tax collected.

To finish this setup procedure use the mouse to select SAVE, then DONE.

Now you begin applying tax to invoices. Select ADD NEW INVOICES & ORDERS. Move to the SERVICES screen via the arrows in the upper left or right hand corners of the screen displayed. Position the cursor several lines below the last entry.

In the S/G column enter the appropriate Service Number (T1, T2, etc.). The program will automatically retrieve and display the description and tax percentage for that number.

In the Quantity column enter the dollar value against which the tax rate will be multiplied. The tax will be calculated automatically and displayed on the lower portion of the screen under Total Service Sales.

For every taxable item on an invoice you must repeat the application steps as noted in the last three paragraphs. Apply the Service Number code which carries the proper tax rate for each item. Once done, every taxable item on an invoice will be taxed at the proper percentage, with an accumulated total displayed at the bottom of the screen. This procedure allows for multiple tax rates against any taxable amount.

To finish adding tax to an invoice choose SAVE and DONE with the mouse. From here you must run the invoices, so return to the main menu and choose BUSINESS FUNCTIONS. Then select the INVOICING & ORDER PROCESSING option, and follow that by choosing the PRINT INVOICES option.

Select the desired invoice or customer number and use the mouse to start printing invoices.

A word of advice: until you get the hang of it, test this procedure on dummy invoices for a fictitious customer. It's not that the process is complex or obtuse, it's just somewhat lengthy.

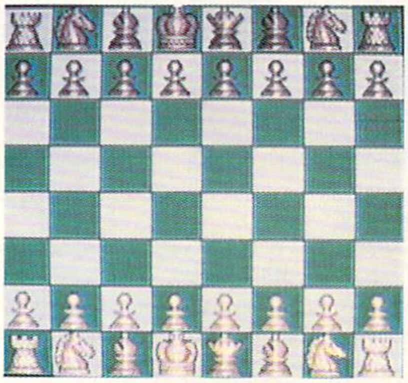
NEXT TIME

Besides reviews and tips, the next column will outline the best way to perform your own software evaluations. General guidelines will be discussed, and more! Remember, we want your input. Ask questions, share experiences. Everyone will benefit. Let's make my mailman earn his pay. □

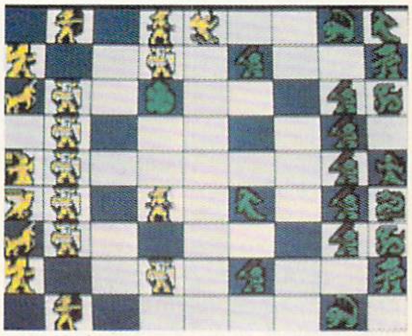
THE ESSENTIAL AMIGA ENTERTAINMENT LIBRARY

24 Outstanding Games for the Amiga

By Arnie Katz and the Editors of *Ahoy!'s AmigaUser*

Chessmaster 2000 *has multiple views, including 3-D (left) and Standard (right). READER SERVICE NO. 265*



Capture is not automatic in **Archon**. *READER SERVICE NO. 266*

During the infancy of home computing in the early 1980s, players fantasized about the "perfect game machine." As they squinted at the crude images and strained to hear the bleats and bangs which passed for sound, they could almost see that perfect machine shimmering on the horizon.

It stretches credibility beyond the breaking point to proclaim the Amiga the fulfillment of that dream. Yet it is arguable that the Amiga is closer to being that ideal game console than any other microcomputer. It has the best sound and graphics, two controller ports which are compatible with standard (Atari) joysticks, and a lot of attractive software.

The editors who regularly cover entertainment for *Ahoy!* and *Ahoy!'s AmigaUser* have compiled *The Essential Amiga Entertainment Library,* a guide to the best recreational programs for the system.

The quality of the play experience and the extent to which the program utilizes the capabilities of the Amiga are the two main criteria for inclusion. We stopped at 24, admittedly an arbitrary number, because no one can afford *all* the programs. Besides, it leaves room in the disk holder for the great new games which will premiere for the Amiga in 1988.

Time for Adventure

The Amiga has helped change the taste of American computing in quest and roleplaying programs. Text adventures, driven by sentence interpreters called "parsers," dominated the market before the coming of the Amiga and other 16-bit machines.

Unfortunately, playing a prose quest on an Amiga is a little like buying a big screen component TV and forgetting to connect the monitor. The obvious audiovisual power of the newest generation of home computers is an irresistible lure. Sound, animation, and more transparent user interfaces have combined to transform the adventure from a typing and word-guessing exercise into a genuinely exciting first-person experience.

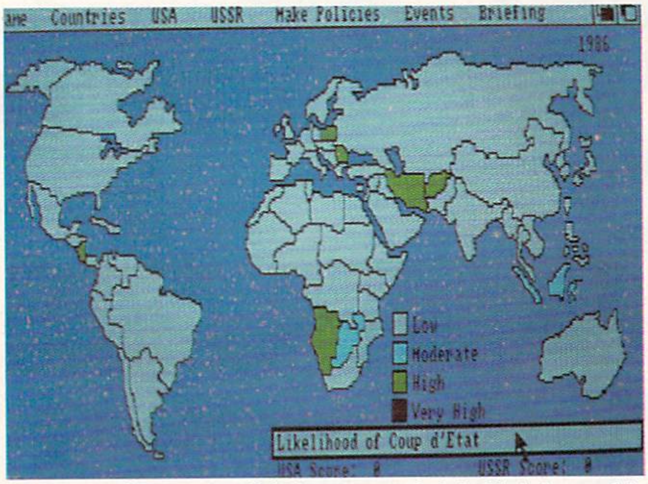
The program which epitomizes this trend toward accessibility is *Defender of the Crown* (Mindscape). The comprehensive documentation is hardly needed, because the routine of play is so straightforward.

The player assumes the identity of one of four Saxon nobles in the period just after the Norman Conquest. The player must unite all the provinces of England and ascend to the throne to win.

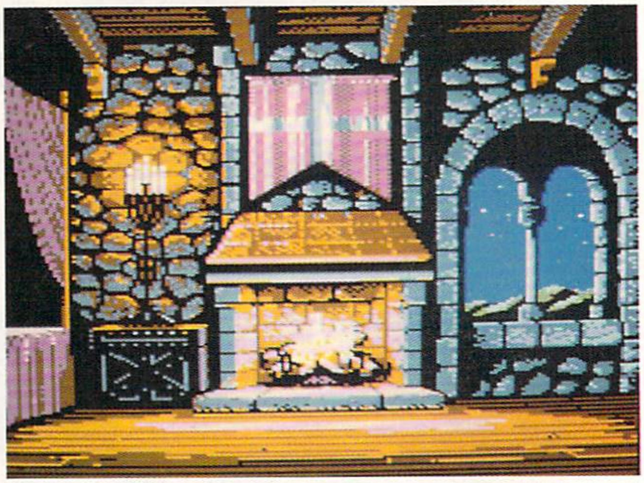
The plot of *Defender of the Crown* is expressed as a series of arcadelike

Shanghai *requires the player to remove tiles from the dragon playfield in pairs. Only the tiles at the edge may be removed, so deciding which pair to take first is a crucial part of the strategy. READER SERVICE NO. 267*





Balance of Power: ***nail-biting game of global brinkmanship.***
READER SERVICE NO. 256



Defender of the Crown: ***unite the provinces of England.***
READER SERVICE NO. 257

contests. An attempt to rescue a maiden, for instance, requires the gamer to play a short sword-fighting game.

The strategic elements balance the work with the joystick. A sound strategy for expansion and defense goes hand in hand with proficiency in the action sequences. (Note: by the time this article sees print, a new edition of *Defender of the Crown* will be available which features a greater number of strategic options.)

Point-and-click technology is the cornerstone of *Deja Vu* (Mindscape). When the player wants to interact with an object in this hardboiled detective yarn, picking a choice from an on-screen menu and pressing the mouse button when the cursor is on the object initiates the desired activity. To exit a room, the player clicks on the door in the graphics window and the word "Open" on the menu bar.

Although *Deja Vu* stresses solving physical puzzles rather than interaction with non-player characters, the well-written narrative prose creates tension and excitement in this symphony of murder, amnesia, and the law.

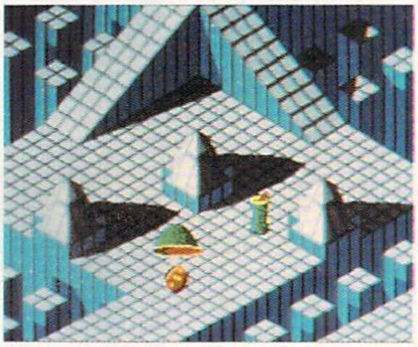
The player must master several mental and physical disciplines in order to succeed in *Moebius* (Origin Systems), an exotic quest game. Philosophy and mental strength is as crucial as expertise in the martial arts as the disciple completes his quest.

For many, the highlight of *Moebius* is the oriental sword combat module. The large figures, seen in shadowy side perspective, look great and move with convincing grace.

Roberta Williams abandoned the "illustrated adventure" format of her earlier games and replaced it with a joystick-driven graphic adventure system in *King's Quest* (Sierra On Line). As the intrepid knight Sir Graham, the player searches a colorful landscape depicted in pseudo 3-D side perspective for the lost treasures of Daventry. Success earns the gamer a royal crown.

Ms. Williams shows an encyclopedic knowledge of children's fantasy literature in this and the three *King's Quest* sequels. Though many of the puzzles are derived from fairy tales, there's nothing childish or watered down about them.

Two fantasy roleplaying titles rate a spot in our *Essential Amiga Entertainment Library. The Bard's Tale* (Electronic Arts) and *Alternate Reality: The City* (Datasoft). In both games, the computerist builds a weak starting character into a powerful one by finding magic items and earning experience in the game-universe.



A cat's-eye view of Marble Madness.
READER SERVICE NO. 258

Alternate Reality follows the progress of a single individual. Kidnapped by aliens and deposited in an unearthly city, the player explores the dangerous metropolis to learn its deadly secrets and collect valuable prizes.

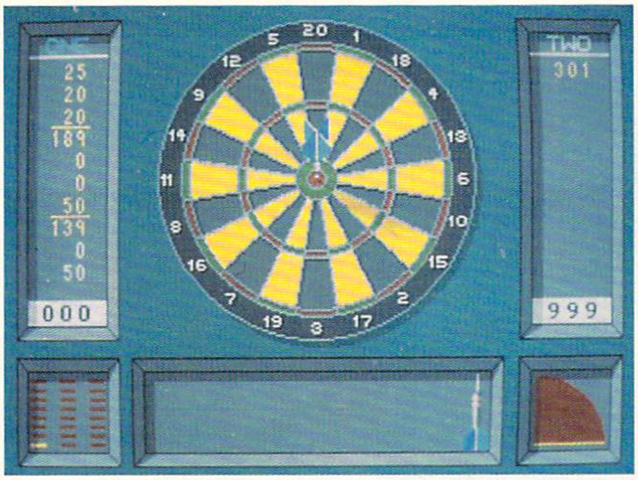
Fans of non-electronic roleplaying games will find little that is unfamiliar in *The Bard's Tale.* The armchair adventurer controls a party of six characters, each of whom has a unique collection of abilities and limitations. Several kinds of magic-users may cast spells, and there are numerous mystic weapons to be found in and around the town of Scarra Brae.

Both *The Bard's Tale* and *Alternate Reality* have inspired excellent sequels. In fact, *Bard's Tale III* may be the single best fantasy RPG available on a disk. We've put only the first title in each line in our library, though, because that's where Amiga gamers should start.

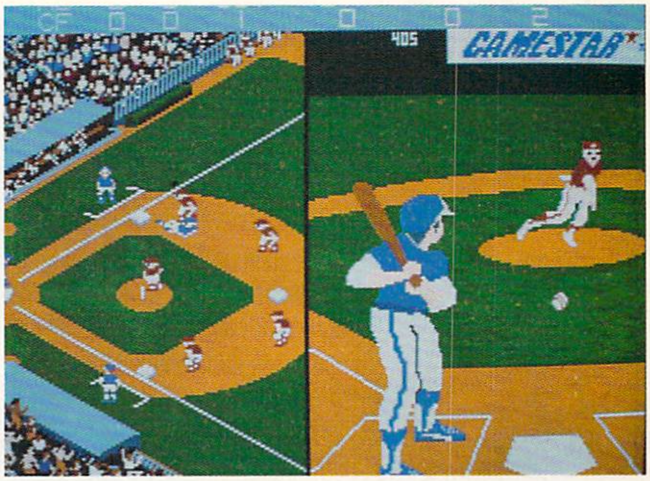
Software for Thinkers

Strategy games, too, have benefitted from the sophisticated interfaces possible with the Amiga. Although the future of strategy programs on the Amiga appears bright, there are already several brain games which belong in any collection.

Shanghai (Activision) is the best original strategy game ever created for the computer. Historians may someday rank it alongside *Monopoly, APBA Baseball,* and *Dungeons & Dragons* as



Indoor Sports: *bowling, darts, air hockey, and ping pong.*
READER SERVICE NO. 259



Championship Baseball: *uses AI to differentiate players.*
READER SERVICE NO. 260

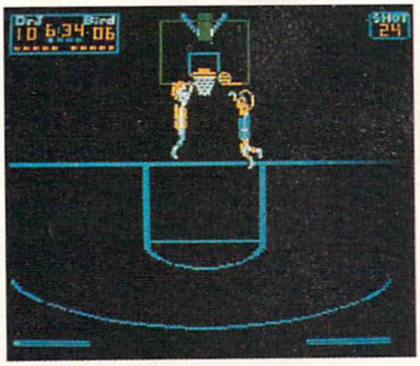
the greatest games invented in the 20th century.

A blend of solitaire and Mah Jongg, *Shanghai* requires the competitor to remove tiles from the dragon playfield in matched pairs. Only the tiles at the edges may be removed, so the strategy involves decisions about which pair to take first when there is a choice.

Strategy is *Shanghai's* strongest suit, but the Amiga edition is certainly a treat for the eyes. The delicate drawings on the tiles and the three-dimensional perspective greatly enhance the players' enjoyment.

Shanghai will have to maintain its popularity for another millennium or so to rival chess as a classic strategy game. The 64-square war gets a fresh treatment in *Chessmaster 2000* (Software Toolworks). It is as much the standard of computer chess today as *Sargon* was in 1983.

At its top setting, *Chessmaster 2000* can hold its own against any other program on the market. More important, its adjustability allows players of all skill levels to compete against an evenly matched opponent.



One on One: *a B-ball game to bank on.*
READER SERVICE NO. 261

Special features of *Chessmaster 2000* include multiple views of the board, several sets of pieces, a library of demonstration matches, and the usual array of move modification aids.

Archon (Electronic Arts) is a chess variant which would be unworkable outside a computer. The equal, though dissimilar, forces of light and darkness contest for supremacy of the board, which includes key squares that cycle from white to gray to black and back again. The power of any piece situated on such a square varies according to its current color.

The major difference between chess and *Archon* is that capture in the latter is not automatic. When two pieces occupy the same space, the program transfers them to a battle board. There they fight it out under the participants' joystick control. The winner of this action encounter sweeps the loser from the board and takes sole possession of the previously disputed square.

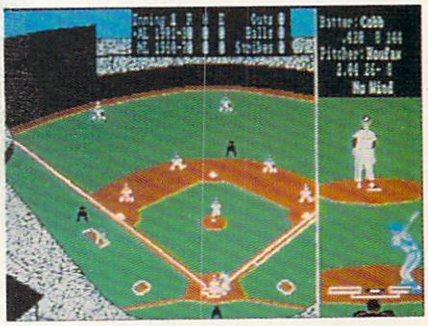
The same design team subsequently produced *Archon II*. Though this, too, is an interesting strategy contest, it does not have the universality and classic structure of *Archon*.

Balance of Power (Mindscape) uses advanced artificial intelligence to create a nail-biting game of global brinksmanship that is more engrossing solitaire than head-to-head. Facing the somewhat predictable computerized foe in *Balance of Power* makes it even more vital for gamers to consider the secondary consequences of each diplomatic move.

The "board" is a map of the world. The player clicks on a country and selects the desired category of information from a pull-down menu to gain information about each nation. Other menus provide the latest news, communiques from the rival superpowers, and other data on which to base policy decisions.

Balance of Power is the best program so far from one of computing's finest designers, Chris Crawford.

Armed and armored automobiles and trucks dominate the world depicted in *Roadwar 2000* (Strategic Simulations). Although the ultimate goal is to rescue scientists who can save the United States from an epidemic, many computerists will enjoy founding a



Earl Weaver Baseball: *action + stats.*
READER SERVICE NO. 262

strong gang and roaming the continent in search of booty and battles.

An unusual feature of *Roadwar 2000* is its three combat systems. Detailed combat is a game in itself, while the quickest version allows the user to skip over "nuisance" attacks and concentrate only on major engagements. *Roadwar 2000* has proved so successful that it has spawned a sequel, *Roadwar Europa,* which will be reviewed in an upcoming *Ahoy!*

Publishers have issued few military simulations for the Amiga. Instead, they've concentrated on strategy games capable of attracting a wider audience than the wargaming hard corps.

A happy exception to the dearth of Amiga wargames is *Kampfgruppe* (Strategic Simulations). This Gary Grigsby creation, recommended for experienced simulation commanders, includes every weapon used on the Eastern Front of World War II. *Kampfgruppe's* tactical scale emphasizes coordinated deployment and maneuver of a modern combined arms force.

The 16th Century Age of Discovery supplies the premise for *Seven Cities of Gold* (Electronic Arts). It casts the player as an explorer who must outfit an expedition and sail to the Western Hemisphere to win gold, glory, and Christian converts.

The world generation module greatly extends the playability of *Seven Cities* and keeps it fresh long after the adventurer has mapped and looted the Americas. The module uses scientific principles to construct an endless string of new hemispheres, so there's no reason for the program to become boringly predictable after a few sessions.



Bard's Tale: ***the role play's the thing.***
READER SERVICE NO. 244



Map and loot the **Seven Cities of Gold.**
READER SERVICE NO. 246

All-Out Action

Since many of today's coin-ops utilize the same computer chips as the Amiga, the arcades are expected to provide many excellent action contests over the next few years. Our *Essential Entertainment Library* includes two such translations, plus an enthralling original.

The home version of *Marble Madness* (Electronic Arts) has eye-popping scrolling graphics and smooth animation of the ball movement. The player maneuvers a ball around the roller coaster landscape. Each playfield contains dips, slopes, jumps, and ledges which fully test the ability to steer with pinpoint accuracy.



Roadwar 2000: ***roam the continent in search of battle and lost scientists.*** *READER SERVICE NO. 247*

There's plenty of combat action in *Into the Eagle's Nest* (Mindscape), but unplanned destruction won't help the gallant commando complete his multipart mission in the four-level German fortress in World War II.

The player must ration ammunition, food, and medical supplies while attempting to rescue the prisoner. Each room and hallway is a physical puzzle which the gamer must solve before enraged German soldiers end the valiant quest with a burst of machine pistol fire.

Gauntlet (Mindscape) is action-fantasy at its most frenzied. One or two players select from among four different characters and test their joystick prowess against a multilevel labyrinth with more surprises than a magician's top hat.

Another *Gauntlet* plus, besides the choice of characters, is the opportunity for two computerists to play cooperatively or competitively. Many computer games are strictly solo affairs, so it is a real treat to find one that can be enjoyed with a friend.

Real-Time Strategy

Computer simulators represent a compromise between the fast pace of action games and the richness of strategy contests. The learning curve is steeper than for most other types of entertainment programs, but that hasn't stopped simulators from becoming hugely popular.

The program which made simulators a hot category, *Flight Simulator II* (SubLOGIC), is at its best on the Amiga. The Amiga's visual capabilities breathe new life into the scenery.

Designer Bruce Artwick's flight simulator has sold over one million disks (counting all editions). Take a test flight and find out why so many other computer owners wouldn't be without *Flight Simulator II* in their software collection.

Action beneath the waves is the focus of *Sub Battle Simulator* (Epyx). This program really piles on the realistic detail, yet the interlocking command screens makes it relatively simple to control one of the six subs on over 60 different missions drawn from World

War II.

Test Drive (Accolade) is the first driving game truly worthy of the designation "simulator." It replicates the performance characteristics of the world's most glamorous sports cars in authentic detail.

The electronic driver monitors speed and revs on a detailed dashboard and must shift up and down with precision to make the climb up a winding road to the top of the mountain. Numerous hazards, including the ticket-happy highway patrol, can turn an otherwise record-setting run into a flaming crash. Additional course disks tentatively planned by Accolade will further enhance this product, but the existing course provides no lack of challenge and excitement in this landmark automotive simulation.

Play Ball!

Earl Weaver Baseball (Electronic Arts) combines an action contest with a statistical simulation in a single design. Before the teams take to the field, the user picks options from a menu to fully customize the ensuing game.

Earl Weaver's presence is felt in many ways. Not only does the retired field general offer strategy suggestions upon demand, but the robot manager is constructed to make the most of such typical Weaver tactics as platooning.

Season disks, available for separate purchase, renew *Earl Weaver Baseball* annually by introducing statistics based on the athletes' performance in the most recent season.

Championship Baseball (Gamestar) is a reconfiguration of the arcade baseball title, *Star League Baseball.* The original was a classic, and this Amiga incarnation adds better graphics, more precise control of fielders, and a secondary display which spotlights the batter-pitcher confrontation.

Like many Gamestar programs, *Championship Baseball* uses artificial intelligence to set up differences among the onscreen major leaguers. For instance, some batters are power hitters, while others make frequent contact with the ball but only spray line drives. The computerist's own physical coordination can overcome this to an extent, but these little biases give *Championship Baseball* an aura of reality it would lack if every hitter were identical.

Solid translations of *World Games* (Epyx) and *One on One* (Electronic Arts), long popular on other systems, are available for the Amiga. These Amiga editions are not markedly different from those for other brands of home computers, but the games themselves are pure gold.

World Games is a globe-girdling set of athletic contests in the spirit of such Epyx successes as *Summer Games* and *Winter Games.* Eight varied events, ranging from Sumo wrestling to cliff diving, are guaranteed to keep one or more competitors straining to set world records.

Julius "Dr. J" Erving has retired from the NBA, but he's still king of the hardwood in this "in your face" battle with Larry Bird. Painstaking computer modeling endows each hoopster with all the moves and shooting skill he possessed at the peak of his game. *One on One* is championship calibre gaming, whether played head-to-head against another human or versus the computer.

Superstar Indoor Sports (SportsTime) is an anthology which contains bowling, darts, air hockey, and ping pong.

Ping Pong is an unusual portrayal of an activity which has been simulated many times since *Pong* first reached the arcades in the early 1970s. Only the paddles appear on the screen, floating just above the height of the table. The other contests are captured with similar imagination, which is one of the things that makes *Superstar Indoor Sports* an excellent value for the sports-minded Amiga user.

Still Under Construction

The 24 programs described in this article are state-of-the-art Amiga entertainment today, but this will surely change before the end of the year. The golden age of Amiga software has barely dawned, and it is likely that the *Ahoy! Essential Library of Amiga Entertainment* will be 50% larger 12 months from now. Devoted computer gamers can hardly wait. □

KING OF CHICAGO
CinemaWare/Mindscape
Amiga (512K)
Two Disks; $49.95

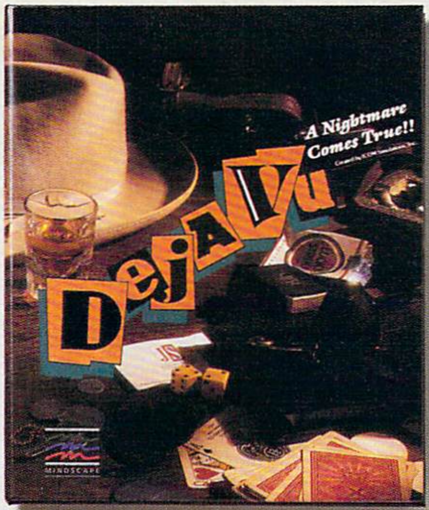
With Al Capone on extended vacation as a guest of the federal government, Chicago was wide open for any mobster with a crazy dream in 1931. Pinky, the player's character in *King of Chicago*, is a feisty thing with an itchy trigger finger who wants to take over undisputed control of the Windy City. The goal in the game is to steer Pinky to the top of the mountain.

Bob and Phyllis Jacob, the executive producers of CinemaWare games, are fearless when it comes to unorthodox subjects. This is one of the few computer adventures which allows the player to assume the identity of a character who does something more antisocial than forget to eat a nourishing breakfast. Under their expert guidance, designer Doug Sharp spins a tale of murder, crime, revenge, lust, and a lot of other violent emotions not usually found in a computer adventure.

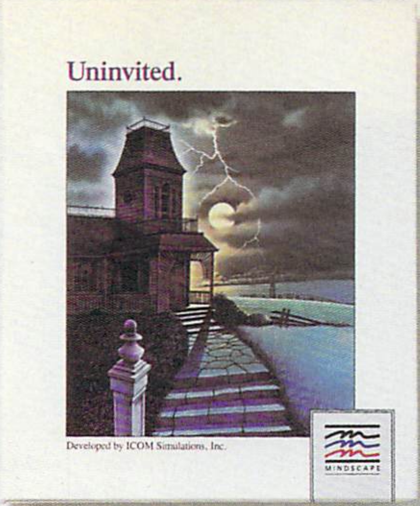
Pinky must learn how to work an effective double cross, as well as master the fine arts of shooting and grenade lobbing, to become the new King of Chicago. The ambitious hood can't just blast everyone in sight, because there are too many well-armed threats. Instead, Pinky interacts with colorful characters like Ben the underboss, leads the gang on raids to gain their respect, and manipulates events so the rubouts go smoothly. And when Pinky puts his roscoe away for the day, he can drive over to Lola's house and get the feminine attention every big-time crook craves.

King of Chicago evokes the gangster movies of the 1930s and 1940s with laconic dialogue, shadowy illustrations, and characters who are shown in proper period costume. The seductive Lola could have stepped right out of a Prohibition gin mill. Eric Rosser's dramatic musical score would do credit to any Cagney or Edward G. Robinson film.

Visually, *King of Chicago* suffers from what in television and comic books is called "talking heads." Often, the only thing on the screen is a head-and-shoulders drawing of one or more characters. They're terrific illustrations, full of detail and personality, but the overall effect is unexciting. An unus-



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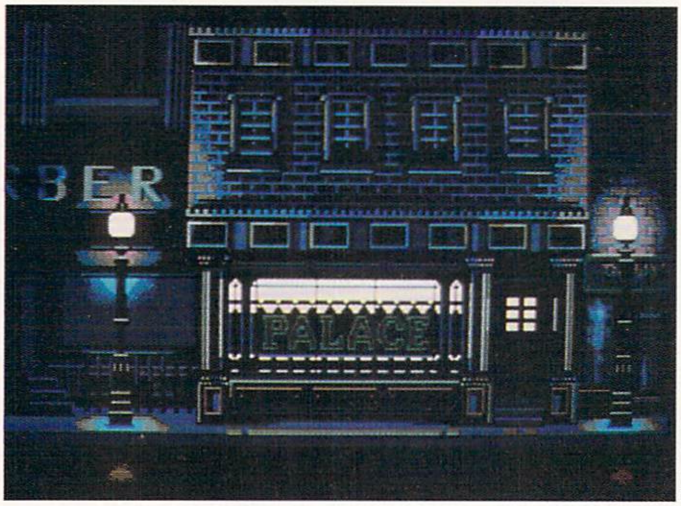
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King of Chicago *evokes the gangster movies of 1930s and 1940s with laconic dialogue and characters shown in proper period costume.* *READER SERVICE NO. 263*

ual touch is that the characters' mouths move in synch with the word balloons above their heads. Perhaps speech synthesis was contemplated at one time.

The conversation system, on the other hand, is especially convenient and effective. When Pinky has a choice of actions or comments, each appears in a separate balloon. The user clicks on the desired option, the other balloons vanish, and the order is executed. The only negative is that choices sometimes don't seem to make a difference. Pinky, instructed by the computerist to be conciliatory, often ends up in a shouting match with the other character anyway.

Like other CinemaWare titles, some of *King of Chicago* is presented in the form of short arcade game sequences. Shooting the gun isn't very challenging, but putting the grenade right through the barbershop window from a rapidly moving car is considerably harder to master. Pinky gets a second chance to toss the pineapple during raids, though only at the cost of exposing the car to attack by the intended victims.

The program randomly combines plot elements so that the "movie" runs differently each time it is played, although the overall goal remains the same. Since some situations are intrinsically more entertaining, of course, gamers should not be afraid to do a quick reset and begin again. There are about one billion possible combinations, so there isn't much chance of using them up quickly.

Though its game-system should be refined a bit before it is used on another adventure, *King of Chicago* is a fairly enjoyable adventure with a truly outstanding premise. It's an offer no gamer can refuse.

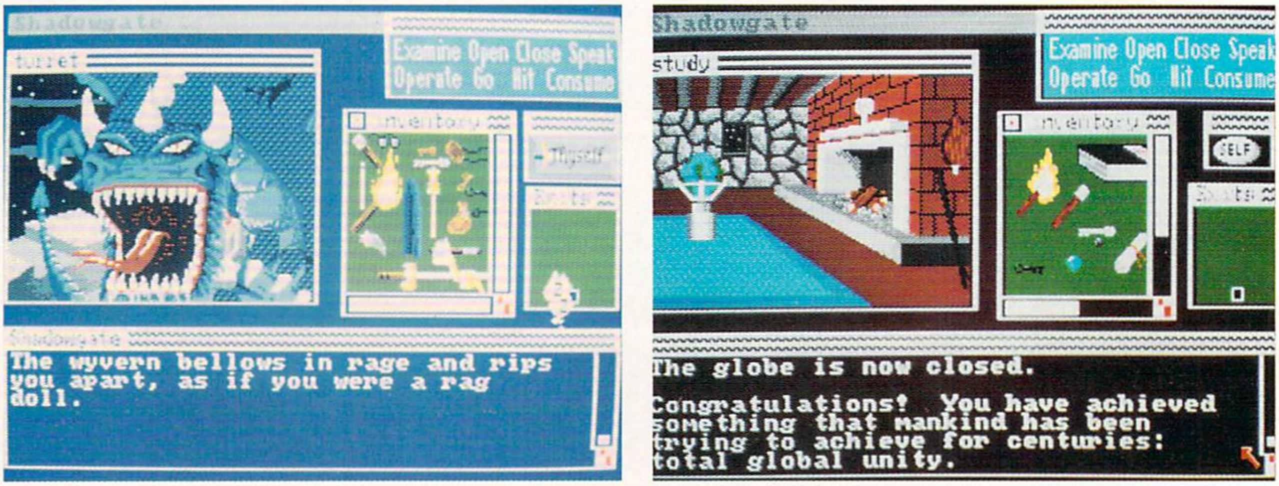
Mindscape, 3444 Dundee Rd., Northbrook, IL 60062 (phone: 312-480-7667). *–Arnie Katz*

SHADOWGATE
Mindscape
Amiga (512K)
One Disk; $49.95

Adventurers need strong nerves inside Castle Shadowgate. Evil Incarnate has set up housekeeping in the old Kingdom, and only compu-heroes with stamina will be able to oust the demon from the manor. Actually, it's hard to separate the devil from his broth in *Shadowgate*. The castle itself is full of enough pitfalls and danger zones to keep most gamers hitting the "save" icon often. Add a demon or two, assorted trolls, and other denizens of the netherworld who now occupy the palace, and the odds against survival become dismayingly steep.

Shadowgate, created by ICOM simulations, turns a ho-hum plot into stirring computer entertainment. The medium is superior to the message. Stunning graphics, exciting digitized sounds, and a labor-saving user interface greatly enhance the play experience.

The resulting entertainment is not only one of the best adventures devised for the Amiga, but also a harbinger of things to come in computer adventuring. ICOM's first adventure in this spectacular system was *Deja Vu*, a hardboiled detective story. *Shadowgate*, like its predecessor, was originally released for the Macintosh and has been reprogrammed for Amiga. The innovative control system translates well to the



Shadowgate *comes close to being a perfect adventure. But for those players to whom solving every nuance of a mystery is important, the game's lack of logic will probably prove frustrating.* *READER SERVICE NO. 264*

Amiga, and the redrawn illustrations, now in color, are superlative.

ICOM's system is a mouse-maven's dream. The user simply points the cursor to any onscreen object and clicks. A second click, this time on the command window, initiates the desired action. The command window contains eight options: Examine, Open, Close, Speak, Operate, Go, Hit, and Consume. The result of the character's action is reported in a text window.

An Exits window depicts all known doors in the current location. To go through a door, the player either clicks twice on the doorway shown on the graphic display, or on the appropriate door in the Exits window.

The Inventory window shows pictures of all items in the adventurer's possession. The last major component of the display screen is an icon which represents the hero. Clicking on this opens and closes the inventory, and also produces a report that "Thou art truly a brave knight!".

To add an item to inventory, the user "grabs" it with the Amiga mouse and drags it to the inventory window. Opening a door is child's play with this system. The user clicks on the door and then on "open." Unlocking a door requires the adventurer to click on the key, then on "operate," and finally on the door.

The world of *Shadowgate* is harsh and unforgiving. Unwary travelers should expect to lose their game life over and over, so it's necessary to save the game in progress frequently.

Shadowgate's storyline is secondary to the process of exploration. Some mysteries are never unraveled. The castle is obviously old, and many things have happened within its walls. Some of the wickedness within can be destroyed, but more often the adventurer can only wonder about the things he finds inside. What are those cages for, and who uses that flimsy bridge? There are exits that aren't meant for human use, and objects that human hand must never touch. Some of these mysteries are explained by the context of the story; more are not.

There's no apparent reason some situations in *Shadowgate* are deadly and others benign. Life-stealing traps spring instantaneously, with no warning signals to help a cautious gamer avoid disasters. Similarly, objects are scattered randomly through the castle with no design behind their disbursement.

In fact, this lack of internal logic is *Shadowgate's* only serious flaw. It's irritating that the inventory won't hold as many items as you need to carry, but gamers are accustomed to this. The torches, which have to be replenished frequently, are a positive annoyance. If the gamer forgets to fire up a new torch, the game life ends when the lights go out. It's aggravating when a deadly weapon doesn't work on an assailant, because that foe is only susceptible to specific items. Yet these are all standard fare for gamers.

But the lack of logic makes *Shadowgate* more difficult to conquer. In fact, I'd wager that no one can actually solve *Shadowgate* without using the Hints available from Mindscape for $5. Even with the hints and answers, it's very difficult to clear the warren of dungeon dreadfuls, devilish intervention, and trollish might.

The Amiga graphics are stunning. Each scene is a colorful painting, greatly enhanced by the occasional use of digitized background noises such as creaking doors and demonic laughter.

Shadowgate comes very close to being a perfect adventure. Point-and-click and grab-and-drag movements are fun to use, and easily accessible to new computerists. On the other hand, if solving every nuance of a mystery is important to you, *Shadowgate* will probably prove frustrating.

Mindscape, 3444 Dundee Rd., Northbrook, IL 60062 (phone: 312-480-7667). *—Joyce Worley*

ALIEN FIRES
Amiga with 512K
Paragon Software/Electronic Arts
Disk; $39.95

If you're familiar with the British television series Dr. Who, you've experienced the type of science fiction that inspired *Alien Fires*. Characters dressed in exotic clothing, clever repartee, bizarre situations full of droll humor—science fiction for the purpose of escapism rather than mental stimulation. In *Alien Fires*, the storyline is less important than the visuals.

Your mission is to locate Octo, a mad scientist who is struggling to see the birth of the universe by traveling through time. You are a Time Lord, an immortal temporal-space traveler who searches the galaxy at the bidding of the Elders of the galaxy. If it sounds like bad writing, be assured that it translates into a bad computer game.

The documentation is a disjointed synopsis that fails to illuminate actual play at all. Although it is possible to figure out the icon system by trial and error, it soon becomes obvious that the game has numerous bugs. It frequently locks up with a black window covering half the screen only minutes into play.

The 3-D graphics are satisfactory, but the Amiga has the capability to far exceed satisfactory. The characters are well-drawn, but they lack animation or movement, which is what the Amiga is all about. As for the program's intelligence, the parser can only respond to a small subset of questions. The player is reduced to simple WHAT, WHERE, and WHO questions.

The space travel sequence is primitive, a starfield scrolling roughly by a space station. It was so reminiscent of Amiga BASIC that I began to seriously suspect that *Alien Fires* might be a compiled game.

Of all the shortcomings the game has, the combat scenes are the most disappointing. A picture of your opponent appears when you enter combat mode, and you attack by pointing the mouse arrow at various locations on his or her armor and pressing the button. This sequence lacks any sound effects or graphic embellishments, and the icon for battle is the same no matter who your opponent is.

When you are killed, frequently and monotonously, a still picture with what appears to be the Silver Surfer holding a big gearshift handle comes onscreen. Then you have to sit quietly while the voice synthesizer takes a minute or two to tell you that you are dead, but that you are going to be resurrected yet again, and placed back in the living hell of dreariness that is *Alien Fires*.

If you go in for this kind of escapist fare, I'd recommend a good book like *Hitchhiker's Guide to the Galaxy* instead. At least your brain will get a little exercise.

Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404 (phone: 415-571-7171).

—Cleveland M. Blakemore

SOUNDS LIKE...AMIGA

Exploring the Amiga's Sound Sampling Capabilities

By Morton Kevelson

Part I: General Overview

The Amiga's built-in sound generating hardware exceeds that of any other personal computer on the market. In fact, the hardware operates on the same principle as the latest method of audio reproduction – the compact disc player. Some knowledge of what goes on behind an Amiga-generated sound will help us understand just what we can do with the Amiga's sound system.

A BRIEF HISTORY

Unless we count the clatter produced by the electric typewriters and teletype machines which served as their prime human interface, the first computers had no deliberate means of generating sounds. It wasn't until the introduction of the personal computer that sound generation acquired any real significance.

The first deliberate attempt at melodious accompaniment consisted on a direct connection of an audio line to one of the computer's logic chips. This is the method used by the Apple II series. Sounds were created by changing the data in the chip and the corresponding logic state at audible rates. The resulting series of pulses were routed through an amplifier to a small loudspeaker inside the computer's enclosure. The generated sounds were not impressive, although they provided adequate accompaniment for games and other recreational software.

The next generation of computer sound appeared in the Commodore VIC 20 and the 8 bit Atari computers. These machines contained three and four voice oscillators dedicated to sound generation. Both the frequency and waveform of the oscillators could be digitally controlled. With proper programming, the resulting acoustic output was fairly impressive. The primary disadvantage of the above methods was that they all required the undivided attention of the microprocessor as well as substantial programming effort. While the computer was generating sounds it was unable to attend to other business.

The introduction of the Commodore 64 represented a quantum leap in personal computer sound generation. The C-64 contains a sophisticated three-voice synthesizer chip which can produce some very impressive sounds. The chip is also able to handle the generation of sound with very little attention from the microprocessor. All the programmer has to do is stuff the appropriate parameters into the chip's registers and away it goes. In fact, with the exception of the Amiga, the C-64 still has the most advanced sound generating equipment of any other microcomputer. This brings us to how the Amiga creates its sounds.

SAMPLING; OR, A SOUND IS WORTH...

The Amiga achieves its extraordinary realism by actually playing back a recording of the original sound. Of course we are talking of a digital recording consisting of data which represent discrete samples of the actual sound. When the topic of digital data comes to light, the bottom line is just how much data is required to accurately reproduce the original signal.

Most of us are aware that sound is simply the sensation of a mechanical vibration of the air upon our ears. The air is set into motion by the vibrations of some other object. Typical examples are the vocal cords, the vibrating strings of a violin, the wail of a siren, or the clatter of steel upon steel as a train rolls by. From our point of view, sounds are an analog or continuous phenomenon.

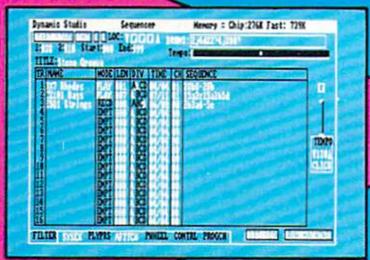
Before the mechanical sound vibrations can be processed, they must be converted into an electrical signal. This is readily done by a microphone which generates an electrical signal whose amplitude varies in direct correspondence to the acoustical vibrations. Technicians involved with sound processing are fond of graphs which show the variations of these signals on the vertical axis versus time on the horizontal axis.

The amount of digital data required to represent a sound is directly related to how fast the sound changes. If you have ever shopped for a high fidelity component, you may be aware that audible sounds fall in the range of 20 to 20,000 vibrations per second. It turns out that we need to sample a vibration at twice the rate at which it may vary. The sampling rate for compact disc players is actually 44,000 samples per second. The limitations of real hardware re-

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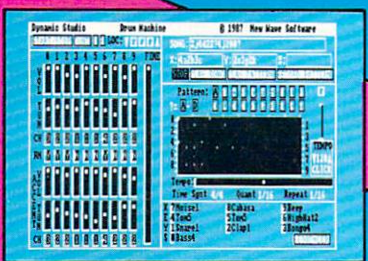
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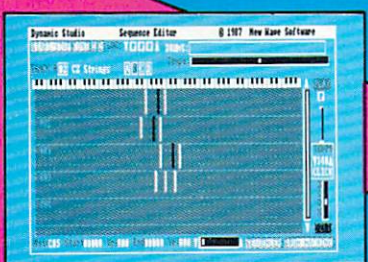
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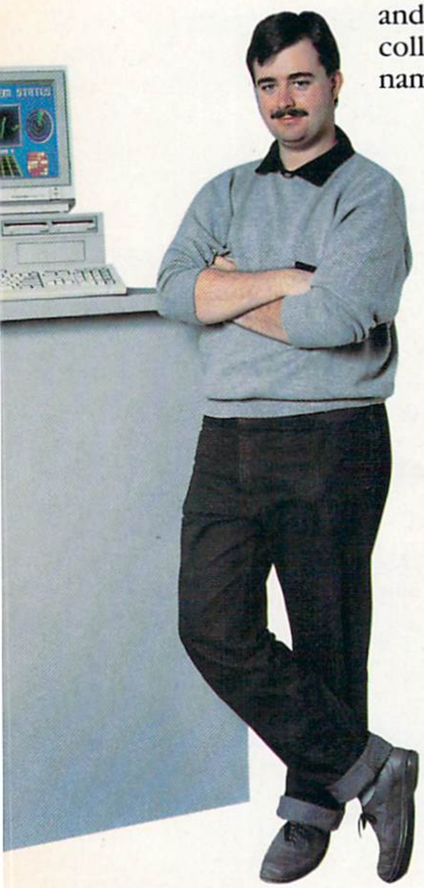
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And at Pixelight
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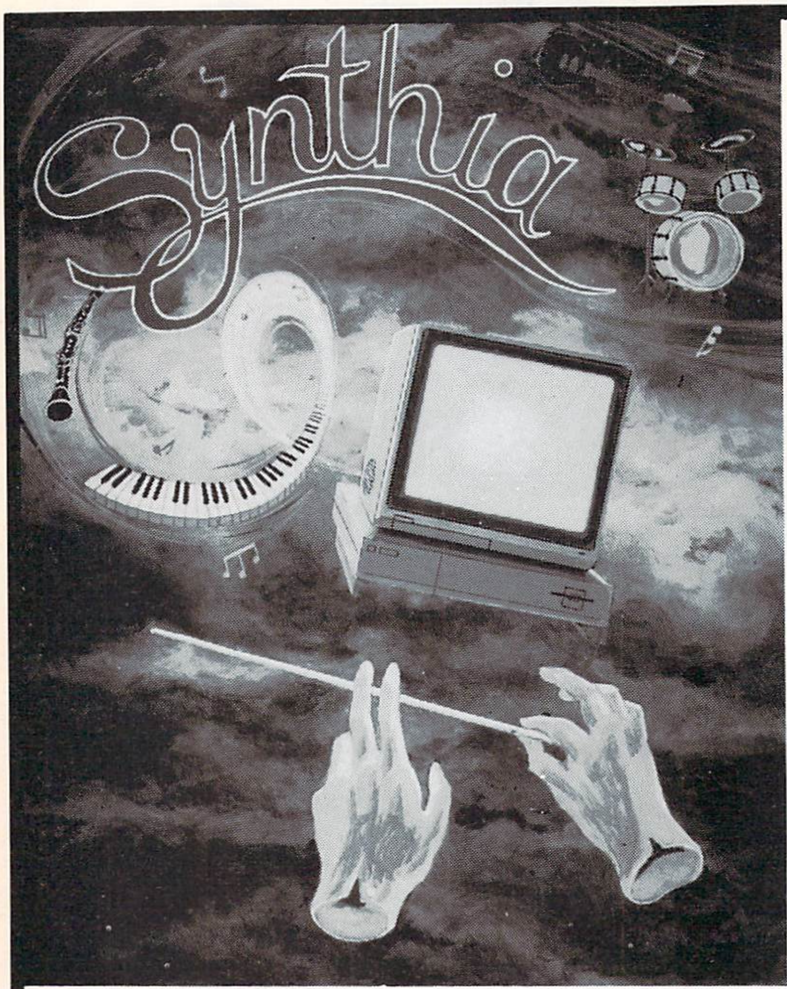
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The rate at which we sample is only part of the story. We also must establish how much data is stored with each sample. The compact disc player works with two-byte (16 bit) samples. This allows for a signal whose greatest amplitude can be 65,536 times as intense as the smallest part. Audio engineers like to express the amplitude range of a signal in decibels (db). The actual unit is the bel, which is the logarithm of the ratio of the power level between the strongest and weakest signals (log (P1/P2)).

In the real world the bel is an inconveniently large quantity. Instead the decibel, which equals ten bels, is the unit of choice. Since voltmeters are easier to build than power meters, the ratio is usually expressed in terms of the relative voltage between the strongest and weakest signal. The resulting formula is 20*log(V2/V1), which translates to 96 decibels for the compact disc player.

This turns out to be a very good number, as it matches or exceeds the dynamic range of live orchestral performances. By comparison the dynamic range of a conventional hi-fi phonograph is on the order of 75 decibels and that of a cassette player with Dolby noise reduction is on the order of 65 decibels. The range of human hearing is generally considered to be 120 decibels. This number spans an acoustical power ratio of 1,000,000 to 1. The zero decibel reference level, or the threshold of hearing, is at a power level of one microwatt per square meter. This makes the 120 decibel level, or the threshold of pain, to be one watt per square meter. Of course greater sound pressure levels are possible, but these result in discomfort and damage to the hearing system.

By comparison to the compact disc player, the Amiga's sound system is not nearly as impressive. The hardware limits the maximum sampling rate to 28,867 samples per second, which translates to an effective bandwidth of 20 to 14,000 vibrations per second. Each sound sample consists of one byte, which results in a dynamic range of 48 decibels. Even with this restricted resolution, sound sampling requires a lot of data. One minute of sampled Amiga sound will fill over 1.5 megabytes of RAM. By comparison, the typical compact disc can store over 500 megabytes of digital data.

The Amiga does have four independent sound channels with channels 0 and 3 going to the left audio output jack and channels 1 and 2 going to the right. Each channel has its own 64 level volume control which serves to improve the dynamic range of the system. As a result, the Amiga's sound quality is comparable to that of a moderately priced audio cassette deck.

While this performance will not make headlines in the hi-fi world, it does substantially exceed the capabilities of the video monitor's built-in amplifier and loudspeaker. If you are interested in getting the most sound out of your Amiga, a hookup to a hi-fi will be required.

The Amiga has one additional limitation which must be considered. The mechanics of sampled sound reproduction require that the signal be filtered on playback. The filter's cutoff frequency is ideally equal to the upper limit of the sampled bandwidth. To allow for lower sampling rates, the Amiga has a built-in filter with a cutoff frequency of 4000 vibrations per second. The filter has a sharp characteristic which results in virtually no output above 7000 vibrations per second.

The omission of the filter results in a phenomenon known as aliasing distortion. The sampling process results in the generation of spurious signals at the sum and difference of the sampling rate and the frequency of the original signal. In effect a complete image of the original signal is overlayed at the difference frequency, which causes a chirping or whistling sound.

If you are using a high sampling rate, the filter could be eliminated. At high enough sampling rates the aliasing distortion frequencies fall outside the range of human hearing or beyond the ability of the audio reproductive equipment. In the Amiga 1000 the filter is hard-wired in place and needs a surgical hack to get around it. In the Amiga 500 and 2000 there is a soft switch for bypassing the filter. The public domain program *LED* by Mark Riley can be used to activate the filter bypass switch in the Amiga 500 and 2000. The program takes its name from the computer's power light emitting diode which goes to half bright when the filter is switched out. A copy of *LED* is provided on the *Audio Master* distribution disk from Aegis.

To finish up we must mention that all four audio channels can be operated simultaneously and independently of one another. The audio chip has the ability to access sampled data using DMA (direct memory access). All the programmer has to do is set the appropriate registers and away it goes on its own. It is also possible to attach channels so that the output of one affects the other. When attached, a channel can be used to modulate the amplitude, the frequency, or both the amplitude and the frequency of an adjacent channel. This interchannel relationship opens up the possibility for the creation of very complex effects in the computer.

The limitations we mentioned above should not be construed as a serious restriction of the Amiga's sound capabilities. Anyone who has heard the Amiga's sampled sound will readily attest to the quality of its performance. The accompanying reviews will highlight a sampling of the products which are available to let you easily access the Amiga's acoustical capabilities.

Part II: Sound and Amiga BASIC

Amiga BASIC has very few sound-related commands, yet quite a lot can be done with them. The simplest command is the BEEP statement which does just what it says—no more, no less. Of greater interest is the SAY command and the related speech statements. These provide access to the operating system's ability to generate human sounding speech of reasonable quality. The most interesting command is the generic SOUND statement which provides direct access to the Amiga's sampled sound system.

The SOUND statement accepts four parameters in the following format:

```
SOUND frequency,duration[,volume,voice]
```

The parameters in the square brackets are optional. The frequency parameter can range from 20 to 15000, and actually represents the repetition rate of the sound waveform. We will shortly see just what that means. The duration parameter can range from 0 to 77 and defines the length of the sound. A duration of 18.2 results in a sound which lasts for one second. The volume parameter can range from 0 to 255, with the default being 127. These values are scaled to the Amiga's actual 64 steps of volume for each channel. The voice parameter specifies which of the four voices will enunciate the sound. Voices 0 and 1 are to the left audio output while voices 2 and 3 go to the right.

The SOUND statement is not quite what it seems to be. The best way to show what this signifies is by direct illustration. Execute the following command:

```
SOUND 440,77
```

This will play a pure tone in middle A for a bit over four seconds. If only one of your Amiga's audio outputs is in use, you may have to specify the channel as in:

```
SOUND 440,77,127,1
```

Notice that we have included the volume parameter as well. In the absence of any other instructions, the Amiga's default sound waveform is a pure sine wave. The following brief program may appear somewhat more elaborate, but it actually does the exact same thing as the single line statement above:

```
DIM Sinewave%(255)
Pi# = 3.14159265#
Harmonic% = 2
Frequency% = 440
Sample# = Harmonic% *Pi# / 256
For i=0 TO 255
  Sinewave%(i)=127 * SIN(i * Sample#)
NEXT i
WAVE 1,Sinewave%
SOUND Frequency%,77,127,1
```

This program shows how Amiga BASIC may be used to generate virtually any waveform from a group of sound samples. The first line sets up a 256 element array which contains the samples upon which the waveform is based. The next three lines define the parameters of the waveform. The fourth line establishes the interval between samples.

The FOR...NEXT loop calculates the actual samples and stuffs them into the array. If you cannot visualize the waveform, you may wish to take some time to plot it. The result will be a single cycle of a sine wave. The next line utilizes the WAVE statement. This WAVE command accepts two parameters. The first parameter selects one of the four Amiga voices. The second parameter assigns an array variable to the selected voice. The array should contain 256 elements which become the actual samples used by the sound chip.

When this program is run there will be a brief delay while the data is calculated. The resulting tone should sound exactly like the one produced by the single-line program above. Observe that we have used voice 1. If your Amiga's sound uses only the left output, change the voice parameter in the last line to 0 or 3.

We will now try a daring experiment—but have no fear, both you and your Amiga will be perfectly safe. Simply change two lines in the program as follows:

```
Harmonic% = 4
Frequency% = 220
```

Run the modified program and listen very carefully. The sound should be exactly as before! What we have just done was change the data for the waveform so that it consists of two complete sine waves. To compensate we have halved the frequency parameter. By doing this we have established that the frequency parameter associated with the sound command does not represent absolute frequency. The frequency parameter actually defines the number of times per second that the assigned waveform will be repeated. Thus by doubling the number of cycles in the waveform and simultaneously halving the repeat rate we have maintained a constant tone in the generated sound wave.

We will now perform a final experiment. Change the program as follows:

```
Harmonic% = 32
Frequency% = 27
```

Once again run the modified program and listen very carefully. The resulting tone should sound very nearly like before. One difference is that the frequency will be 27 * 16 = 432 vibrations per second. This is close enough to the original 440 vibrations per second so as not to be significant. You may have also noticed a high pitched whine along with the fundamental tone. This experiment demonstrates the effects of aliasing distortion.

The Amiga changes the waveform repetition rate, as set by the frequency parameter in the SOUND command, by varying the sample rate used by the sound chip. When we set the frequency parameter to 27 we forced the sample rate as low as it could go within Amiga BASIC. This sample rate appears to be between 8000 and 9000 samples per second. It is the difference in this sample rate and the 400 hertz test tone which we are hearing as aliasing distortion.

If you are playing the Amiga through a hi-fi system, the high pitched aliasing tone should have been fairly obvious. If you are using the video monitor to reproduce the Amiga's sound output, you may not have been able to hear the high pitched sound. If you have an Amiga 500 or an Amiga 2000 Mark Riley's LED program should be of some help. This will switch out the Amiga's low pass filter, which does not result in significant attenuation of the aliasing tone.

It is possible to generate sounds far more complex, and interesting, than pure sine waves. All that needs to be done is to provide the appropriate data for the array used by the WAVE statement. You will also notice that Amiga BASIC

severely limits what you can get out of the sound chips. To start with, the size of the sound sample is limited to only 256 bytes, hardly enough to create really elaborate sounds. It is possible to create a large number of 256 byte arrays and write a program to switch between them. However, the process is not very convenient and you will soon come up against some very severe timing arrays. Of course Amiga BASIC has no provisions to allow for the modulation of any of the sound channels by any of the others.

The simplest way to generate elaborate sounds with the Amiga is to record them, or sample them, from the real world. Two products which allow you to do just that are profiled in the next section. There are a number of collections of sampled sounds created with these devices which have been placed in the public domain. Another source of exotic sounds is the instruments used by the various music programs for the Amiga.

Amiga BASIC is an open language in the sense that it has provisions to easily link with machine language routines. A complete set of routines for the reproduction of sampled sounds on the Amiga has been placed in the public domain. These routines were written by John Foust and are available on Amicus disk number 13. A fully commented *Amiga BASIC* program is included with the routines to illustrate their use. See the announcement later in this feature for information on acquiring these routines.

Part III: Product Profiles

After reading Parts I and II of our presentation, you're probably eager to have your Amiga make some incredible sounds to augment your program. Or you may just be interested in some unique tintinnabulation which can be converted into an outrageous musical instrument for your next composition on that Amiga music package.

You are up against a formidable problem. Sampled sounds require large amounts of data. Even at moderate sampling rates you will need 10,000 bytes per second of finished sound. Furthermore, realistic sounds are very complex and cannot be created with simple mathematical calculations.

It would be nice to go to your local audio emporium and pick up a disk or two of Amiga sounds. Unfortunately, the library of prerecorded Amiga material is still meager. The only alternative is to record your own sampled sounds. The two following products will let you do just that.

FUTURE SOUND

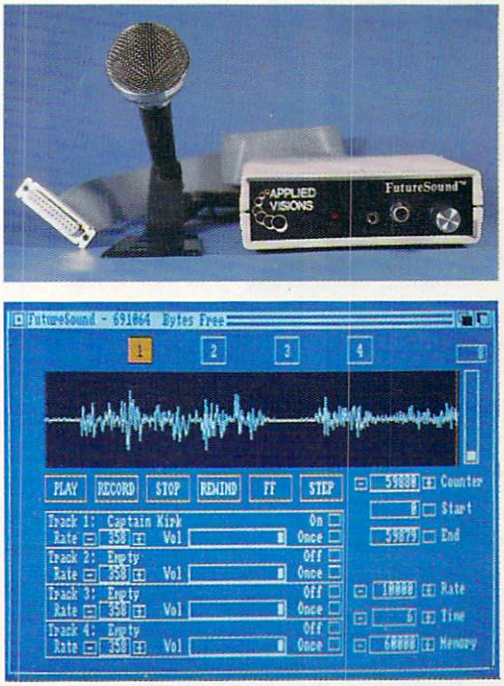
Applied Visions, Inc.
Amiga with 512K
Price: $175.00

Future Sound comes with everything you need to start recording sampled sounds on the Amiga. The package contains a low cost microphone, similar to those supplied with portable cassette recorders, which plugs directly into the Future Sound module. Future Sound will also accept a line level signal, such as the record output from an audio receiver, the playback output from an audio cassette deck, or the audio output from a VCR.

The Hardware

The current version of Future Sound was designed for the Amiga 1000. The unit is fitted with a two foot ribbon cable which is terminated by a connector suitable for the Amiga 1000's parallel port. An accessory parallel port connector is provided on Future Sound's back panel. Additional parallel port accessories, such as a Centronics printer, may thus be hooked up without disconnecting Future Sound. The choice between Future Sound or the printer is via a front panel pushbutton which lights up when Future Sound is active.

Future Sound may be used with the Amiga 500/2000 by hooking it up through a suitable adapter. The adapter should convert the gender of the parallel port and reroute the pin connections which differ between the two machines. Future Sound is powered from the Amiga's own 5 volt power supply, which appears on pin 23 on the Amiga 1000 and on pin 14 on the Amiga 500/2000. If you have upgraded from the Amiga 1000 and still have your original printer cable, a single adapter may be all that's required. If you started with the Amiga 500/2000, a second adapter may be required to connect parallel port peripherals to Future Sound's Amiga 1000 style parallel port. Life would have been simpler for all concerned if Commodore had stuck to the industry "standard" parallel port configuration in the first place.



Top: Future Sound with microphone. Bottom: editor and control screen can handle up to four samples. *READER SERVICE NO. 243*

Future Sound is built into a 5" square by 1½" deep plastic box which stands on its own rubber bumpers. The front panel has a single volume control, an RCA type line level input jack, and a miniature microphone jack, as well as the lighted pushbutton described above. The two foot connecting cable lets you position Future Sound on either side of the Amiga or on top of the video monitor.

Sound sampling by Future Sound is performed by an AD7575, 8 bit analog

to digital converter. The AD7575 should have no problems meeting the system's sampling requirements, as its conversion time is specified at five microseconds, which could conceivably support a sampling rate as high as 200,000 samples per second.

The Software

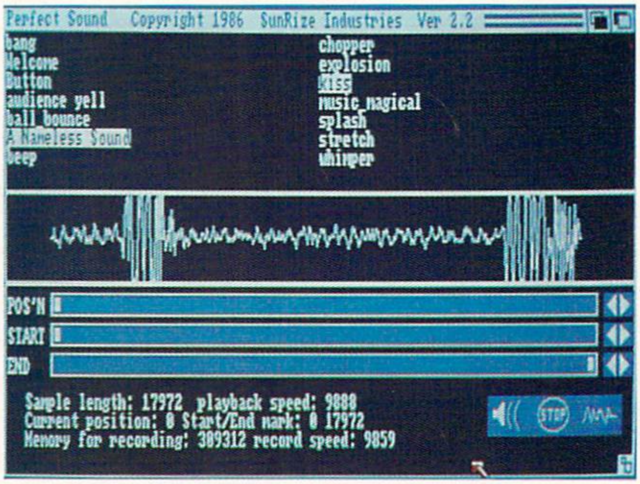
Future Sound is supplied on a bootable copy of the Workbench disk. We found two versions of the Future Sound operating software on the distribution

code, which support the access and reproduction of sampled sounds saved to disk. A similar set of routines are provided for Amiga BASIC programmers, along with a fully commented example program. A single sound sample from the original Star Trek series is also on the disk. The C and Amiga BASIC routines and their supporting programs have been placed in the public domain and are available on Amicus disk number 13.

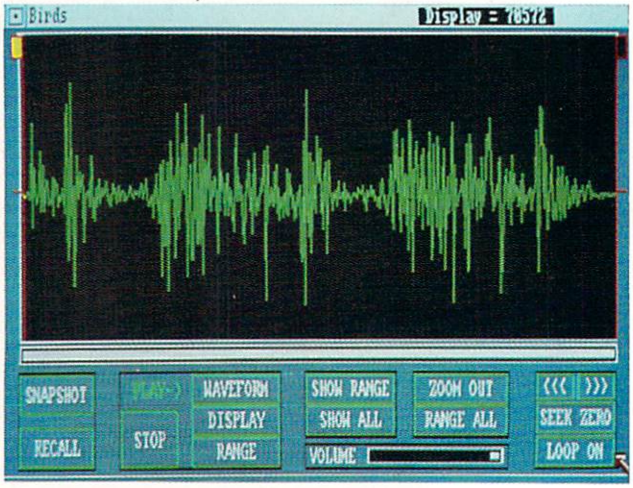
All of Future Sound's operations are

sound channels. Tracks 1 and 2 go to the left output, while tracks 3 and 4 go to the right. Selection of the track, which will be used for recording and display, is via four button gadgets above the sound graph.

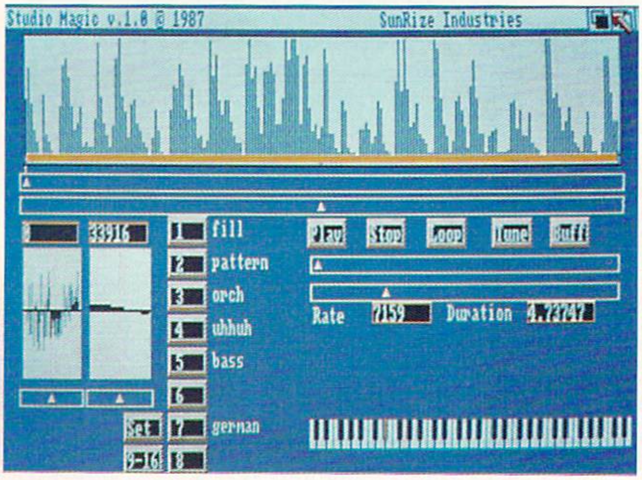
To the right of the sound graph is a Magnifying Bar slider gadget which lets you zoom in on any part of the waveform. The start, end, and counter positions within the current track can be set by simply clicking on the visible portion of the waveform and then



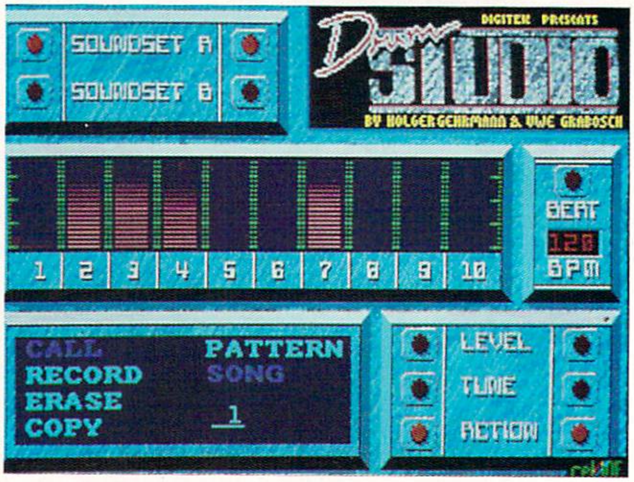
Perfect Sound's editor/control screen; samples at top.
READER SERVICE NO. 250



Audio Master's waveform graph dominates working screen.
READER SERVICE NO. 251



Studio Magic's sample buffer divides into 16 segments.
READER SERVICE NO. 252



Drum Studio: all functions on screen are keyboard-driven.
READER SERVICE NO. 253

disk. The original release, version 1.0, supported only 512 kilobytes of chip RAM. The latest release, version 1.2, also recognizes expansion RAM which supports the creation of larger samples.

The distribution disk also includes a set of C routines, with their source

mouse and menu driven, with keystroke combinations provided for all of the menu functions. The top third of the working screen is dominated by a graphical representation of the selected sample. Future Sound can work with four samples or tracks at a time. These correspond to the Amiga's four

clicking on the corresponding setting gadget beneath the graph. Fine tuning of the counter's position can be done by clicking on the plus and minus gadgets associated with the counter gadget. This is a slow process, as the entire visible portion of the sound graph is redrawn with every click.

The fastest way to set the pointers and select a segment for editing is to click on the sound graph display to position the counter, zoom in on the selected portion, refine the counter position by clicking on the sound graph, zoom in some more, and finally find the exact setting with the plus and minus gadgets. The process is quite quick and painless once you get used to it. The actual value of the sample under the position counter is displayed to allow for pop-free splices.

A set of gadgets below the sound graph mimic the functions of a cassette recorder. The Play gadget sounds out the current ranges of the tracks which are on. The Record gadget starts the recording, which continues for the preset time. The Stop gadget terminates the playback process. The Rewind, FF (fast forward), and Step gadgets let you rapidly move through a sample. Note that the rapid movement functions are only applicable when the sound graph displays only a portion of the entire sample.

The recording parameters are selected by a set of gadgets in the lower right corner of the display. The Rate gadget selects the recording rate in samples per second. Recording rates from 1000 to 28000 samples per second are available in 100 sample per second increments. The Time gadget shows the length of the sample in seconds. The Memory gadget shows the size of the buffer, which corresponds to the product of Rate and Time. All three gadgets are linked, in that changing one automatically updates the other two, with the Rate value taking precedence.

Each track has its own set of playback controls. Tracks can be turned on or off, or set for single play or for continuous looping. Each track has its own volume control and playback rate setting. Changes to the playback settings cannot be made while the sound is playing.

The number shown in the playback Rate gadget apparently represents the number of color clock pulses per playback sample. To obtain the actual playback rate you start by multiplying the number of clock pulses in the Rate gadget by 279.365 nanoseconds per clock pulse, which gives you the number of nanoseconds per sample. Next you take the reciprocal of the result and multiply that by one billion. The answer is the playback sampling rate in samples per second. It is completely beyond our comprehension why the software does not do this in the first place and simply display the sampling rate.

Sounds may be saved as a straight data dump or in IFF format. IFF files may be one shot sounds or three-octave instruments. The marker settings in the sound graph window determine the part of the track which will be saved. When saving as a three-octave instrument, the markers are also used to set the startup section and the sustain section of the wave.

Editing Functions

The fourth menu item (Bag Of Tricks) contains Future Sound's editing functions. The simplest function simply reverses the order of the sampled data. Samples may be patched by copying sections from track to track. A sample in RAM may be mixed with a sample from disk. The mixing process is actually a summation of the data and can result in clipping of the resulting sound. Samples may be cleaned up by zeroing parts of data. All the samples in a given section may be scaled up or down as required.

Overall, Future Sound did a competent job of sampling sounds for the Amiga. The supporting software provides the basic functions for manipulating the samples. Operational flexibility is enhanced by the inclusion of a parallel port and both high and low level inputs.

Applied Visions, Inc., Suite 2200, One Kendall Square, Cambridge, MA 02139 (phone: 617-494-5417).

PERFECT SOUND

SunRize Industries
Amiga with 512K
Price: $89.95

Like all sound sampling accessories, the *Perfect Sound* digital sound sampler does not record sound directly. It actually looks for an electrical signal, representing the sound of interest, which it converts into a series of samples. *Perfect Sound* requires a line level audio signal such as the record outputs from a stereo receiver, the playback output from an audio cassette deck, or the audio output from a VCR. To do live sampling with a microphone, some form of preamplification is required. *Perfect Sound* is a two channel device which supports the recording of true stereo sound samples.

The Hardware

Two versions of the *Perfect Sound* module are currently available. The first version was designed for the Amiga 1000. SunRize Industries has just released a new version for the Amiga 500 and 2000. Both units connect to the computer's parallel port. If you are upgrading from an Amiga 1000 to an Amiga 2000, you will not be able to adapt the original *Perfect Sound* to the new machine. Although the two versions of *Perfect Sound* are functionally identical, the Amiga 500/2000's parallel port has some internal differences which resulted in a redesign of *Perfect Sound's* interface.

The Amiga 1000 version of *Perfect Sound* is built into a 5" long by 2½" wide by ¾" deep metal box which peers over the back of the computer when it is plugged directly into the Amiga's parallel port. In this position the twin shafts of *Perfect Sound's* volume controls can be adjusted by reaching over the CPU. You may wish to install a pair of small knobs on the bare shafts to serve as position indicators as well as to facilitate adjustment. The twin RCA type stereo input jacks are situated on the right side of the box.

The actual signal sampling is handled by a pair of ADC0802, 8 bit analog to digital converters. According to our data sheet, the ADC0802 has a conversion time which is less than 100 microseconds and a maximum conversion rate, in free running mode, of 8888 conversions per second. This left us somewhat puzzled as to how *Perfect Sound* achieves the high end of its specified 5000 to 25,000 samples per second recording rate.

The Amiga 500/2000 version of *Perfect Sound* is constructed inside a compact 2" by 3" by 1" thick metal box. It can be plugged into the printer port; however, in this position its controls will be difficult to access. When installed directly in the printer port the single volume control and the twin input jacks face toward the rear. We

solved the access problem with a $5.00 DB-25 extension cable we picked up at a local computer flea market. These cables are usually sold as RS-232 extensions. Just make sure that all 25 pins are wired through the cable. As with the Amiga 1000 version, you may wish to dress the shaft of the single volume control with a small knob. Radio Shack part number 274-203, at 79 cents a pair, is a suitable choice.

Sound sampling by the Amiga 500/2000 version of *Perfect Sound* is performed by a single AD7576, 8 bit analog to digital converter. This means that the converter chip has to be shared by the twin stereo channels. The AD7576 should have no problems meeting the system's sampling requirements, as its conversion time is specified at 10 microseconds, nearly ten times as fast as that for the ADC0802.

The Software

We have to hand it to SunRize Industries for the opening sequence on their software. You will literally get a bang out of it. In fact, if the volume is turned up on the sound system, everyone in the vicinity will probably dive for cover. We received version 2.2 of the system software. The source code for version 2.0 is included on the distribution disk with a note that the source code for the current version may be released in the future. The system software is actually available as a $20 shareware program with a twist. You have two weeks to send in your $20 or buy *Perfect Sound*, or else be guilty of copyright violation. An early version of the *Perfect Sound* software has been released to the public domain.

The distribution disk also includes the test of the IFF specification for sampled sounds, plus a collection of sound samples. We also found instructions on creating five octave IFF instruments for use with Amiga music programs. The instruction manual only covers three octave instruments.

All of *Perfect Sound's* operations are mouse and menu driven. Keystroke combinations are provided for many functions. The working screen is divided into three parts. The top part displays the names of the samples currently in memory. Up to 15 samples may be worked with at any given time. To select a sample for editing, simply click on its name. The center part of the screen is used to display a graph of the current sample. The graph can be set for manual or automatic operation. Since the graphing routines were very fast, we found no reason not to use the automatic graph display setting.

The bottom part of the screen contains three sliders. Two are for setting the start and end position of the current range. The third marks the insert position for some of the editing functions. Coarse adjustments are made by dragging the sliders with the mouse. Single byte adjustments can be made by clicking on the arrows associated with each slider. The slider positions are always referenced to the original graph of the entire sample, even when only a part of the sample is graphed. The display has a continuously updated digital readout of the current sample size, playback rate, the positions of all three sliders, remaining memory, and the values of the first and last bytes displayed. The last two parameters are invaluable for making smooth transitions when splicing samples.

Three steps are required to record a sample. First the sample rate should be set. Faster sampling rates result in higher fidelity along with increased data requirements. The second step is the setting of the recording level, which can be done in two ways. *Perfect Sound* can be set to display the peak values of the sampled signal while the recording level is being adjusted. Or, you can set *Perfect Sound* to monitor mode, where the input signal is sampled and immediately played back through the computer. The trick is to adjust the gain for an acceptable level of distortion. For best results set the recording level so the sample spans the maximum recording range without clipping.

When ready to record, simply select the record option from the menu. The program goes into monitor mode until the mouse button is clicked and recording actually starts. During the actual recording process the playback through the computer is turned off. A second click of the mouse button stops the recording. Monophonic recordings can be made from the left or right channels, or stereo recordings can be made from both channels. When editing stereo recordings, only the contents of the right channel are graphed. Samples may be saved as IFF files, as straight data dumps, or as data dumps in a compressed format. The last method uses Fibonacci Delta Compression, which saves each sample as a four bit offset from the previous sample. This will cut the file size in half, but may substantially reduce sound quality.

Samples which are in memory may be edited in several ways. Sounds can be cleaned up by deleting or zeroing a range. New samples can be created by copying a range to a new slot, by appending slots to each other, or by inserting a marked range into a sample. Stereo samples can be broken up into individual samples which are automatically marked with an L and an R. Conversely, selected samples can be combined into stereo. Samples can be flipped for reverse playback. Samples can also be doubled and halved in both their length and playback frequency. The last two operations are used when creating a set of samples to be converted into an IFF instrument.

Overall we found *Perfect Sound* to be a well-designed instrument. The supporting software is well thought out, easy to use, and full of features.

SunRize Industries, P.O. Box 1453, College Station, TX 77841 (phone: 409-846-1311).

The editors supplied with the sound samplers may seem more than adequate for their task. However, sampled sounds are complex quantities which can be manipulated in many ways. The next two products are stand alone editors which show some of the advanced ways that sampled sounds can be manipulated.

STUDIO MAGIC
SunRize Industries
Amiga with 512K
Price: $99.95

Studio Magic is a dual purpose software package in that it combines a sophisticated sampled sound editor with a MIDI sequencer. As we lack a MIDI setup, we were unable to fully evaluate *Studio Magic's* MIDI capabilities. However, the MIDI-sequenced selections on the enclosed demonstration

disk were quite impressive. Judging from these demos, we feel that *Studio Magic* should be able to deliver what it claims it will.

The acronym MIDI stands for Musical Instrument Digital Interface. It represents an industry standard which defines the hardware and protocols to allow electronic musical instruments to communicate with one another in a civilized fashion. The MIDI standard has been in existence for a brief time. After an initial settling period, it seems to be developing into a workable and useful system. Between instruments, MIDI serves primarily as a channel whereby one instrument may control several others. The placement of a computer in the chain adds the ability to record and edit performances.

Studio Magic's user interface is mouse- and menu-driven, with alternate keyboard selection in some menu items. The only other uses for the keyboard in *Studio Magic* are to respond to the keyword copy protection and to enter file names. Some of *Studio Magic's* operations require numeric parameters for their execution. These parameters are all entered via slider gadgets. We felt that the option to enter numerical parameters via the keyboard should be available to the user.

Studio Magic has the ability to sample its own sounds if a compatible, parallel port sound sampling device is connected to the Amiga. Naturally enough SunRize Industries' product, Perfect Sound, is mentioned in the manual. A quick test indicated that Future Sound could also be used with *Studio Magic*. Perfect Sound does provide the option to create and manipulate stereo samples as well.

To facilitate the editing of sound samples, *Studio Magic* provides two independent buffers. The size of the buffers depends on the available memory and on how *Studio Magic* is started. On a one megabyte Amiga 2000 we ended up with about 82 kilobytes in each buffer when we autobooted directly from the *Studio Magic* distribution disk. When we started up *Studio Magic* from Workbench we ended up with approximately 130 kilobytes in each buffer. When *Studio Magic* is started from CLI, the size of the buffers must be specified as part of the startup command.

All of the editing and data manipulation functions can be applied to either buffer or, when applicable, from one buffer to the next. The data in each buffer may be independently loaded from disk. Buffers may also be partially filled by appending data from the disk.

The top third of the *Studio Magic* display is devoted to a graphic display of one of the buffers. A button gadget toggles the graphic display between the buffers. Unlike the other editors we have seen, *Studio Magic's* graphic display shows the root mean square (RMS) values of the sample. RMS values relate directly to the absolute power, or intensity, or the signal. The graphic display shows the entire contents of the buffer. There is no way to zoom in on a section of the data. A pair of small windows below the main graph are used for bytewise movement of the pointers within the buffers. These show the actual values of about 70 bytes of sample data. The numerical value of the byte under the slider is displayed in a window above the small graphs.

The main graphic display has a pair of coarse sliders for setting the start and end of a data section. Either slider can represent the start of a section. The starting slider is simply whichever one is to the left. This ability to leapfrog the sliders allows for the selection of contiguous data sections. The most recently set slider also represents the current position of the insert point.

Studio Magic's Edit menu functions require that a section is first Marked for manipulation. To do this simply set the sliders and select Mark from the Edit menu. Data sections may be Inserted, Pasted, or Overlayed or blended from one location in the buffer to another or into the second buffer. Most operations may be Undone if a second operation has not been performed.

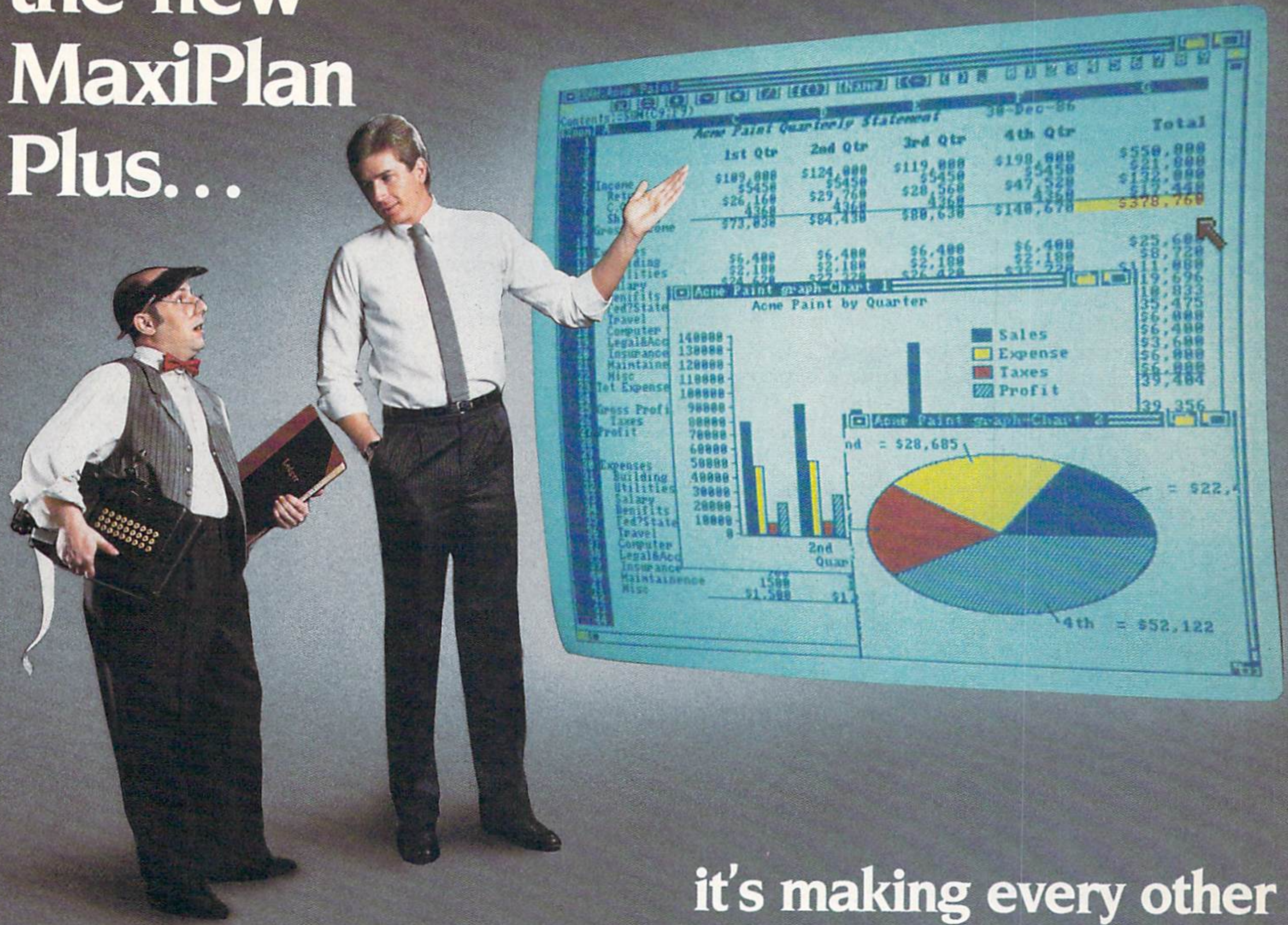
Whenever a data section has been delineated by the sliders it can be memorized with one of the 16 buttons provided in the center of the screen. Each of these buttons stores the starting and ending positions of the selected section along with the playback sampling rate. A nine character name may also be assigned to the setting. For editing purposes, these buttons make it easy to identify and quickly return to specific sections of the data. These buttons actually represent more than a specified sample. Each of these buttons actually represents a MIDI-selectable voice. If a MIDI instrument is hooked up to the Amiga, *Studio Magic* will play these voices as the instrument's keys are pressed. Thus *Studio Magic's* true purpose is to turn the Amiga with a MIDI instrument into a sophisticated sound sampling instrument.

The advanced data manipulation functions are found in the Tool menu. The simplest operation performed by these tools is the reversal of a data segment. The remainder of the functions perform some mathematically intensive operations on the current data section. Most of the functions require one or two parameters for their completion. The manual provides a brief description of most of the functions with little or no explanation regarding the various parameters. This is unfortunate, as we feel that users without the proper technical background will have a difficult time figuring out what some of the parameters represent. In this case additional technical details, along with some actual examples supported by samples on disk, are really required.

We did manage to figure out the function of most of the Tools upon which we base the following brief descriptions. The Interpolate Tool raises or lowers the pitch of the selected sample. The Compress and Expand tools shorten and lengthen the duration of a sound without changing its pitch. For example, Expand will speed up speech without the associated chipmunk sound. The Gravy Tool is a combination of Interpolate, Compress, and Expand, and we haven't quite got the hang of it yet.

Rescale adjusts the maximum amplitude of a data section to a specified value. The Delay Tool is not described in the manual, but it expects to be told the number of delays desired and the associated maximum delay. Flange is also not documented; however, it requests a sweep period. In general, Flange refers to the process of phase shift modulation. The Comb Tool applies a very narrow band pass filter to a sample. The AM tool generates amplitude modulation for a vibrato effect. The Echo Tool is self explanatory. It requires an echo delay and the num-

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ber of echoes. The FFT Tool generates a plot of a 512 point Fast Fourier Transform of the first 512 samples after the current pointer. The information provided by FFT relates to the frequency content of the sample. Acceptance of the printed output option will result in several pages of detailed data. The Invert Tool is undocumented and remains something of a mystery to us.

The next two menus deal with *Studio Magic's* MIDI functions. The Keyboard Menu contains the functions for turning MIDI on and off, setting split points on the MIDI keyboard, and assigning them to one of the 16 voice settings in *Studio Magic* and selection of the active MIDI channel. Velocity-sensitive keyboards may also be used to control the playback volume of Amiga samples.

The Sequencer menu supports the recording of all actions on the associated MIDI keyboard. Recorded sequences may be played back using the Amiga's internal voices, on an external MIDI instrument, or on both. Recorded MIDI sequences are saved as text files which can be modified by most word processors or the AmigaDOS editors. Although it is possible to manually create and edit these sequences, the process is tedious and time-consuming. Most users will stick to their instruments. *Studio Magic* does allow you to repeat the contents of the MIDI buffer, overdub a stored sequence, and remove all the instances of a particular instrument.

The Project menu lets you save data in a variety of formats. The Save Everything option saves the contents of all the buffers, including the 16 button settings, in separate files for the two sample buffers, the MIDI data, and the slider settings. The Amiga's IFF file format for sampled sounds is supported by *Studio Magic*. A selected sample can be saved as a one shot sound or it can be used to create a five octave IFF instrument. When creating an IFF instrument, the sample should be tuned and a sustain point should be set. Tuning has to be done manually against an external reference sound.

Overall *Studio Magic* is a powerful sampled sound editing package with built-in MIDI support. It should be of particular interest to MIDI musicians. An expanded rewrite of the manual would be helpful.

SunRize Industries, 3801 Old College Road, Bryan, TX 77801 (phone: 409-846-1311). —*Morton Kevelson*

AUDIOMASTER

Aegis Development
Amiga with 512K
Price: $59.95

AudioMaster is a general purpose sampled sound editor with a strong bias toward the creation of musical instruments in both the IFF and Sonix formats. Good use is made of system resources, in particular the utilization of expansion RAM for the creation of large samples. Both parallel port and joystick port sound sampling devices are supported. The sampling rates for parallel port devices are 8363 samples per second (the alleged standard rate for IFF instruments) and 19,886 samples per second. The sampling rate for joystick port devices are 8363 and 14,914 samples per second.

Prior to creating a sample, you specify the length of the sample with a slider gadget and you choose from the two sampling rates which are available for your device. The level of the incoming signal may be easily adjusted by viewing the waveform on the built-in, real time oscilloscope. The oscilloscope is a small graphic display which shows the actual waveform as it is being sampled. The maximum sample size depends on the available memory. We found that about 400K was available for samples on a 1 megabyte machine. The sample buffer must be a continuous block of RAM, which means that the actual possible sample size may turn out to be less than the available memory implies.

All of *AudioMaster's* operations are mouse driven, with keyboard combinations for most menu items. The dominant feature of the *AudioMaster* working screen is the graphic display which occupies about two thirds of screen. When a sample is first loaded in, its entire waveform is shown on the graphic display. The size of the display and the sample is shown in the top right corner of the screen. Note that *AudioMaster* only shows the size of the graphic display and not the size of the sample.

Many of *AudioMaster's* editing functions require the selection of a range of data to be worked on. A range may be easily marked off by dragging the mouse across the window. The display may be zoomed in to show only the marked range. The process may be repeated until only 599 bytes of the sample are visible. The Zoom Out button backs off the display by doubling the contents of the window with each step.

Since the entire waveform can be scrolled past the window, it is possible to set ranges with great precision. At any time you can listen to the entire waveform, the contents of the visible portion of the sample, or the marked range. Whenever the visible portion of the waveform is sounded out, a vertical line scrolls across the display which shows the position of the data as it is being played. The use of direct visual feedback makes it easy to locate the position of a particular sound.

An important part of a musical instrument is the sustain or repeat portion. This is the part of the waveform which continues to sound after the initial part of the note dies out: for example, the sound you continue to hear on a piano as long as the key is held down. *AudioMaster* makes it easy to set the repeating part of the waveform. The Loop On/No Loop button toggles the display of the repeat markers.

The repeat markers may be set to any part of the waveform by simply dragging them into position. Pressing the Waveform button sounds the entire waveform until the end repeat marker, at which point the waveform starts to loop the part of the sample between the repeat markers. The markers may then be readjusted while listening to the sound. Precise adjustments can be done by ranging and zooming in on the data around the marker or by using the arrow buttons to move the markers in small increments. The set zero button will move the currently selected marker to the closest zero crossing of the waveform.

For editing purposes, *AudioMaster* maintains a non-visible buffer which can hold a copy of the entire waveform. The buffer can be loaded directly from disk or it can be cut or copied from the current waveform. The edit buffer's contents can also be protected from modification, making it effective as an undo buffer as well. It is also possible to use the Snapshot button to save the current data and its settings to a user-

selectable device such as a disk drive or RAM. Of course the device must have sufficient space to accommodate all the data. The Recall button is used to restore the snapshoted data. Only one snapshot may exist on a given device at any time.

AudioMaster provides several editing functions. The Cut function removes a range of data from the waveform. The Cut data can be saved in the buffer or discarded. The Copy function transfers the ranged data to the buffer without removing it from the waveform. Data in the buffer can be Pasted (inserted) into the waveform or it can Replace a corresponding block of data. The Zero function is used to clean up a part of the waveform. It is even possible to Edit Freehand, or to manually redraw, the waveform display. The Edit Freehand function displays only 599 bytes as discrete data points.

Additional waveform modification tools are located in the Special Effects window. The backwards function simply reverses the marked range or the copy buffer. The contents of the copy buffer can be mixed into the main waveform. The strength of the mixing function is under the control of the user. It is also possible to flange the data as it is being mixed. Flange is a function which modulates the frequency, or pitch, or a waveform. Mixing a sound back unto itself with flanging adds depth to the sound. Proper use of flanging requires some practice, but once mastered it can generate some interesting effects.

When creating a musical instrument, the proper pitch is of fundamental importance. *AudioMaster* provides the Tune Waveform function, with its own window and menu, for the precise adjustment of the sample's pitch. The Tune Waveform requestor lets you adjust the sampling rate, and pitch, by entering a value or by moving sliders. It is even possible to enter a specific note value in lieu of a sampling rate. The window also displays the number of color clock pulses per sample. (See the accompanying review of Future Sound for the significance of this last parameter.) All three parameters are automatically updated whenever one of them is changed.

To facilitate the precise adjustment of the pitch, *AudioMaster* provides a built-in tuning tone. The tuning tone, which defaults to a middle C at a sampling rate of 8363 samples per second, can be adjusted to any frequency or note value. The tuning tone is played through one Amiga sound channel while the waveform is calibrated against it. Precise adjustment is thus made possible by listening to the difference in pitch between the two tones. Radio operators will recognize the process as a zero beat adjustment. Once a waveform has been adjusted to the proper pitch, it can be converted to a different sampling rate. Resampling the data generates a new set of samples which retain the shape and pitch of the original waveform when played back at the new sampling rate. Resampling is used to make the waveform compatible with IFF music programs. It is also possible to raise the pitch of a waveform, by one octave, by using the Upsample function.

Waveforms can be saved in IFF format or in Sonix format. The waveform may be a single octave one shot sound, a three octave instrument, or a five octave instrument. The HiFi Save function is a unique *AudioMaster* process for creating high resolution multioctave instruments. It utilizes the original sampled data, which is resampled during the save process, to create a high resolution, multioctave instrument. This can be significant, as the original sampling rate can exceed 20,000 samples per second.

The last *AudioMaster* feature we will examine is the RAM Scan function. RAM Scan lets you look at and listen to the contents of the Amiga's chip memory. This opens up the possibility of retrieving a deleted sample or of getting a sound sample from another program and saving it to disk. Note that the Amiga's operating system makes heavy use of chip RAM for display purposes. The act of opening the file requestor may change the data in chip RAM. The end result is that what you see is not necessarily what you get.

AudioMaster comes with a 70 page, indexed instruction manual which includes some technical explanation of the processes involved, as well as the instructions for operating the program.

Aegis Development, Inc., 2210 Wilshire Blvd., Suite 277, Santa Monica, CA (phone: 213-392-9972).

Both the *Studio Magic* and *AudioMaster* editors provide sampled sound manipulation features which are not provided with the editors associated with the sound sampling hardware we looked at. Each of these editors emphasizes different aspects of the Amiga's sound capabilities. *Studio Magic* is, for all practical purposes, a complete MIDI instrument. *AudioMaster* has some powerful mathematical functions and a very easy to use graphic display for the precise manipulation of samples. However, you may find that neither program offers sufficient additional basic functions, beyond what is provided with your hardware, to justify a purchase. The next product we look at is not a sample editor in the usual sense, although it can function as one to some degree. In fact it takes a completely different approach to working with Amiga sound.

SYNTHIA

The Other Guys
Amiga with 512K
Price: $99.95

Until now we have looked at hardware which allows you to record real sounds as digital samples in the Amiga's memory. We have also examined software which lets you digitally edit the sampled data to modify the original sounds or to create new sounds. More often than not, the end result of the sample editing process is an IFF data file, in the form of a musical instrument, which may be used by any of the many Amiga programs which play or compose music.

Synthia takes an entirely different approach to the creation of sampled sounds in the form of musical instruments for use with the Amiga. Starting with a blank slate, *Synthia* applies the magic of pure mathematics to logically generate the sample sequence of melodious tones. In effect, *Synthia's* music is all in its head. The task of coaxing forth cacophony or harmony is left up to the end user. To its credit, *Synthia* provides a varied set of easy to use tools for the creation of musical instruments.

Synthia is actually a collection of five independent synthesizers; Additive, Subtractive, Plucked String, Percus-

sion, and Interpolation. Each of these uses a different method which is suitable for synthesizing different types of instruments. *Synthia* does not limit itself to instruments of its own creation. An existing sampled instrument may be loaded into one of *Synthia's* buffers, where it can be directly modified or indirectly blended, in varying degrees, with a sound of *Synthia's* own creation. Instruments created by *Synthia* are of course saved in IFF format.

Of course *Synthia's* sample editors bear little resemblance to the editors we have looked at. At no time does *Synthia* provide a graphic display of an entire sample. Nor does *Synthia* let you cut, paste, or insert parts of a sample. Instead, *Synthia* deals with the overall characteristics of a sample. It thinks in terms of envelopes and harmonic content. Its tools filter, flange, amplify and reverb, and modulate and amplitude, phase, and frequency content of the sample.

Synthia multitasks very well, in fact so well that we were even able to simultaneously open two synthesizer modules and create independent sounds with each of them, a process which is not condoned by the manual. When a synthesizer module is selected it opens a full screen window. All of *Synthia's* modules bear a strong resemblance to one another, as they share a number of common features. A cursory glance may lead one to assume that, aside from a different name, each window is in fact identical. A close examination reveals that although most of the tools are the same, each synthesizer has unique features.

All of *Synthia's* operations are tool-based and mouse-driven without the use of any menus. To perform an operation, simply locate the desired tool and click on it. All parameters are set via switches or sliders. The keyboard is used to play the current instrument or to enter file names. Work in *Synthia* is started by opening one of the full screen instrument design windows which were listed above. The Do Sound button, which appears in all of the design and special effects windows, causes *Synthia* to calculate the current sound based on the existing settings. The calculation which is initiated by the Do Sound button can be very complex. The time to complete the calculation ranged from 1 or 2 seconds to 15 seconds.

Until the Do Sound is activated at least once, there is no sound in *Synthia's* buffer. The Undo button is also present in all the sound creation windows. *Synthia* keeps a copy of the last sound created prior to the current operation of Do Sound. Undo will instantaneously restore the sound to what it was if the current results are unsatisfactory. The setting of the Mix In slider determines whether Do Sound uses the current settings to modify the existing sound, or if an entirely new sound is created, or if a blend of the existing sound and the new sound will become the current sound.

The octaves which will be affected by Do Sound can be individually selected. Thus, it is possible to create a unique sound for each octave of an instrument. The Hi-Spec buttons are used to select the octave range of the instrument. Instruments can be played with the mouse, only one note at a time, by opening the Keyboard window. The Keyboard window has the advantage of showing a full six octaves with the available octaves clearly marked. On the other hand the Amiga keyboard will play up to four notes at a time, one for each of the Amiga's voices. Since the range of the Amiga's keyboard is only three octaves, the function keys are used to shift the range.

The second level of *Synthia's* operations are the special effects windows consisting of AM Modulate, Amplifier, Reverb, Flanger, Filter, Waveshaper, and Spare Sound. All the special effects windows are available in every instrument design window. In fact it is possible to open all of these windows at the same time. Keeping a frequently used window open can save time, as the disk has to be accessed when a window is opened. Each window has its own front and back gadgets. If a window is left open it can be brought to the front, with little or no delay, by simply clicking on its tool in the current window.

AM Modulate is used to vary the amplitude or loudness over the duration of a sound. When working on a sampled sound which has been loaded into *Synthia*, AM Modulate can be used to Strip the existing amplitude modulation from the sound. Conversely, the Extract tool can be used to analyze the sound and generate a copy of its envelope for each of the sound's octaves. These envelopes can then be examined and modified with *Synthia*.

Amplifier is used to raise or lower the overall volume or amplitude of a sound. It can also be used to adjust the amplitude of selected portions of the sound. Reverb is the concert hall equivalent of echo. Within Reverb, Delay controls the size of the hall, Feedback adjusts the number of echos, Filter regulates the frequency content of the echos, and Level affects the overall loudness of the echo effect.

Flanger is used to add phase distortion to the original sound. The term Flange comes from the rims of the open reels used to handle tapes in recording studios. Flanging effects were generated by pressing on the reel flange to vary the tape speed. *Synthia* mathematically flanges the sound by mixing it with a delayed version of itself.

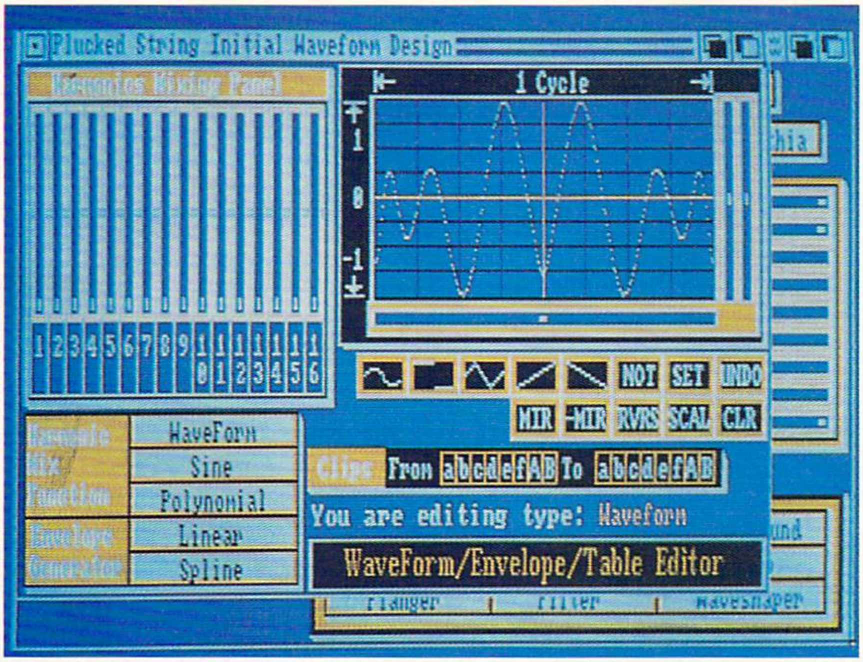
Spare Sound is actually a buffer which stores a second sample within *Synthia*. The current sample may be copied to or swapped with Spare Sound. It is also possible to blend the current sound with Spare Sound with variable delay.

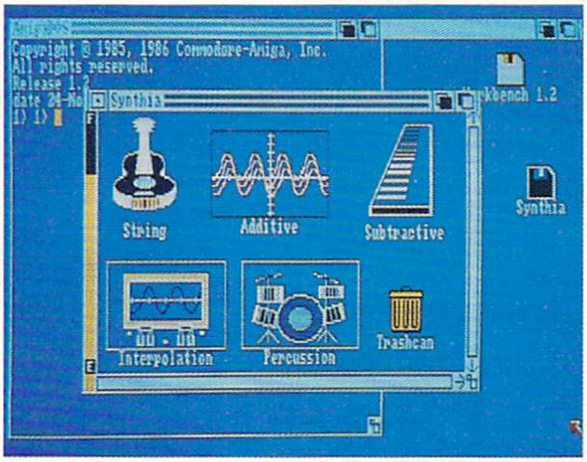
Filter controls the frequency content of the samples with the use of low pass, high pass, band pass, and notch filters. As with all of *Synthia's* modules, there is a wide range of adjustment provided for the various filter parameters.

Waveshaper provides for the alteration of the fundamental harmonic structure of a sound. It is actually a mathematical transfer function based on a table of values. In the Amiga, sound samples are stored as signed, 8 bit numbers which range from −128 to +127. Waveshaper's conversion table assigns an output value to each input value of the sample.

It is possible to set the table so that only the parts of the sound which exceed a certain amplitude will be affected. For example, this would apply to the attack portion of many instrument sounds. Waveshaping is a relatively new technique which has not yet been fully explored.

The tool most frequently used during the operation of *Synthia* may be the Waveform/Envelope/Table Editor. This window can be opened from within





Above: the Plucked String design screen is typical of all of Synthia's *working screens. Right: an iconic conceptual representation of* Synthia's *five instrument creation modules.* *READER SERVICE NO. 107*

nearly every other one of *Synthia's* windows. Although its appearance and gadgets remain the same, its exact functions will depend on where it originates. Within *Synthia*, a Waveform is generally the repeating portion of the sound, while the envelope represents the overall shape of the entire sound. We have already discussed the significance of Table in conjunction with Waveshaper.

The Editor window is dominated by the 16 slider Harmonics Mixing Panel and a graphic display of the current Waveform/Envelope/Table. The title in the Editor window's scroll bar indicates where it originated and its current function. A message near the bottom of the window identifies what is being edited. The coordinates of the graph are also varied accordingly.

Editing may be done by adjusting the sliders in the Harmonic Mixing Panel and activating one of the Harmonic Mix Functions or one of the Envelope Generators. A selection of basic operations, such as a square wave or a sawtooth, can be obtained by using the buttons under the graph. A maximum of eight copies of the contents of the graph and the position of the sliders can be saved in a set of buffers for this purpose.

Synthia is provided as a two disk set. One disk contains the *Synthia* program modules. The other disk contains a selection of songs and instruments and the SMUSPlayer. The SMUSPlayer is a very short program which does an excellent job of playing IFF musical scores. Since it is small it can play very long compositions with many instruments. SMUSPlayer will also multitask with other non-acoustic Amiga applications. As such it can be used to generate background music while the Amiga is used for other things.

As can be seen from our brief descriptions, *Synthia* is a large and complex set of programs which can perform a great variety of operations on sampled sounds. We have barely touched on just how and what can be done with *Synthia*. The manual is nearly 300 pages in a spring wire binder which lays flat on the desk. The bulk of the manual is devoted to the description of the Instrument Design modules in Chapter 5. The operation of the special effects modules is presented in Chapter 4.

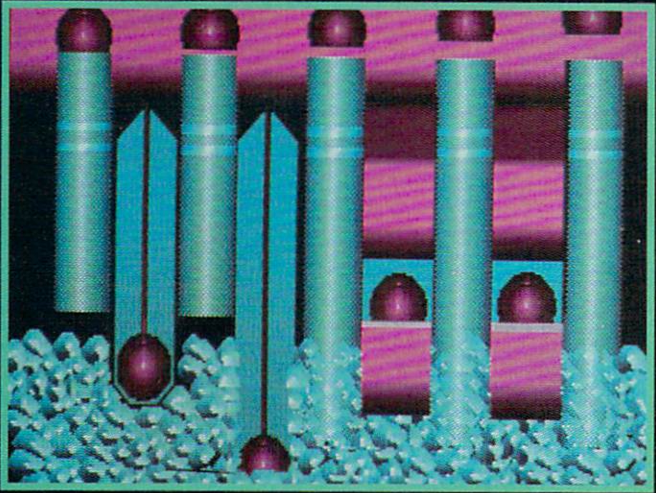
The functions of each module are briefly described, along with the operation of each of the tools. The basic descriptions are supported by detailed, worked out, illustrated examples. These examples (more than 50 of them) create useful instruments about half of the time. The remainder generate some strange effects which are used to illustrate the various functions. The manual is not as intimidating as it may at first appear, since the description of the common tools is repeated with every module.

When learning to use *Synthia*, we suggest you first go through the brief introductory chapters. Next, skim through the detailed descriptions of the common instrument tools in Chapter 6 followed by a quick look at the Waveform/Envelope/Table Editor in Chapter 7. At this point carefully tackle Chapters 4 and 5 while trying out the examples. You may find that to start with, only one or two of the Instrument Design windows will be sufficient to keep you occupied. You may wish to return to the more complex tools at a later date.

Synthia is a very powerful software-based synthesizer. It incorporates many functions which originally required the use of very expensive hardware. We know of no other single piece of hardware or software which provides more than a fraction of *Synthia's* capabilities. We can recommend *Synthia* to any Amiga musician interested in creating his own instruments.

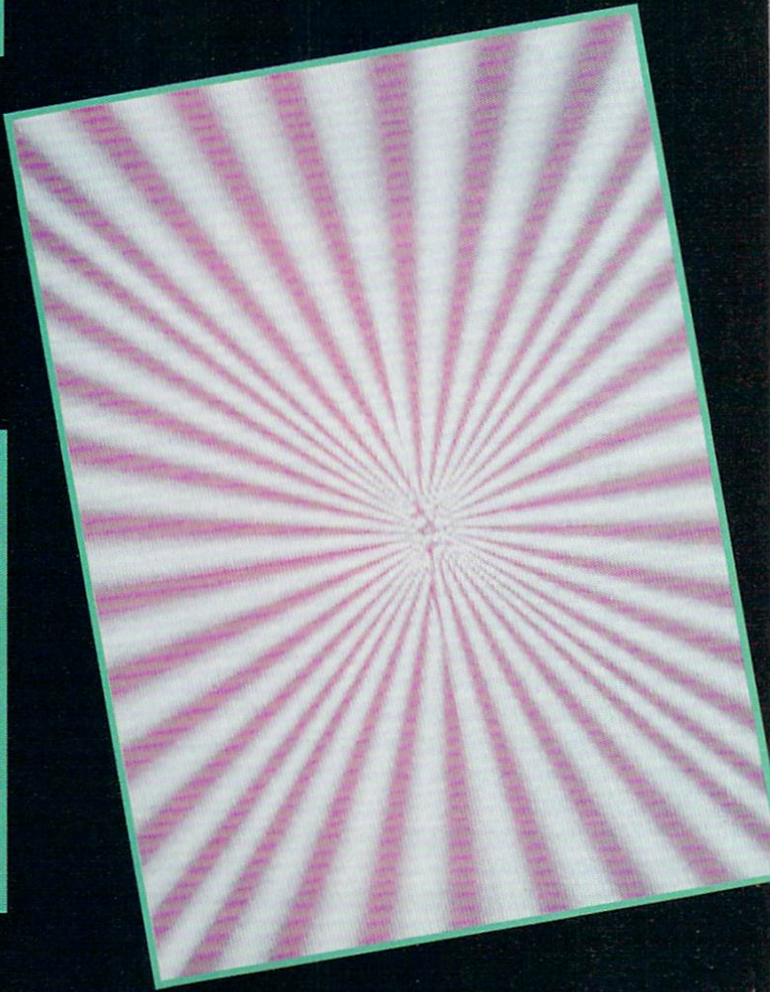
The Other Guys, 55 North Main Street, Suite 301-D, P.O. Box H, Logan, UT 84321 (phone: 800-942-9402 or 801-753-7620).

ART GALLERY



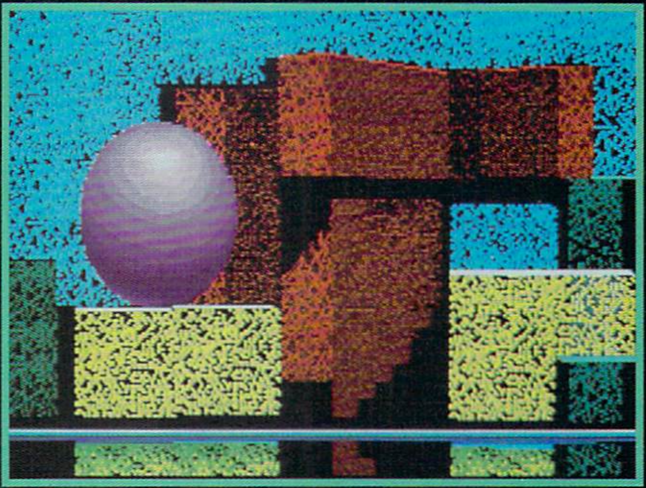
Top left: ***Heathcliff*** **bears the pawprint of John Thomas Rodriguez (New York, NY), who worked in low-res on** ***Deluxe Paint.*** **Lower left: a** ***Still Life*** **that beats any bowl of fruit we ever saw, drawn on** ***Deluxe Paint*** **by Glenn S. Adkins (Palm Beach, FL). Above: a** ***3-D*** **illustration of** ***DP's*** **brush select tool manipulation, also by Glenn. Below:** ***Moving Shades*** **by Gary Dominguez (Oklahoma City, OK). Top right: B.B. King's legendary** ***Lucille,*** **by Bruce Yarbor (Oklahoma City, OK). Bottom right: Alisa Lowden's low-res** ***Lady by the Sea*** **(State College, PA).**

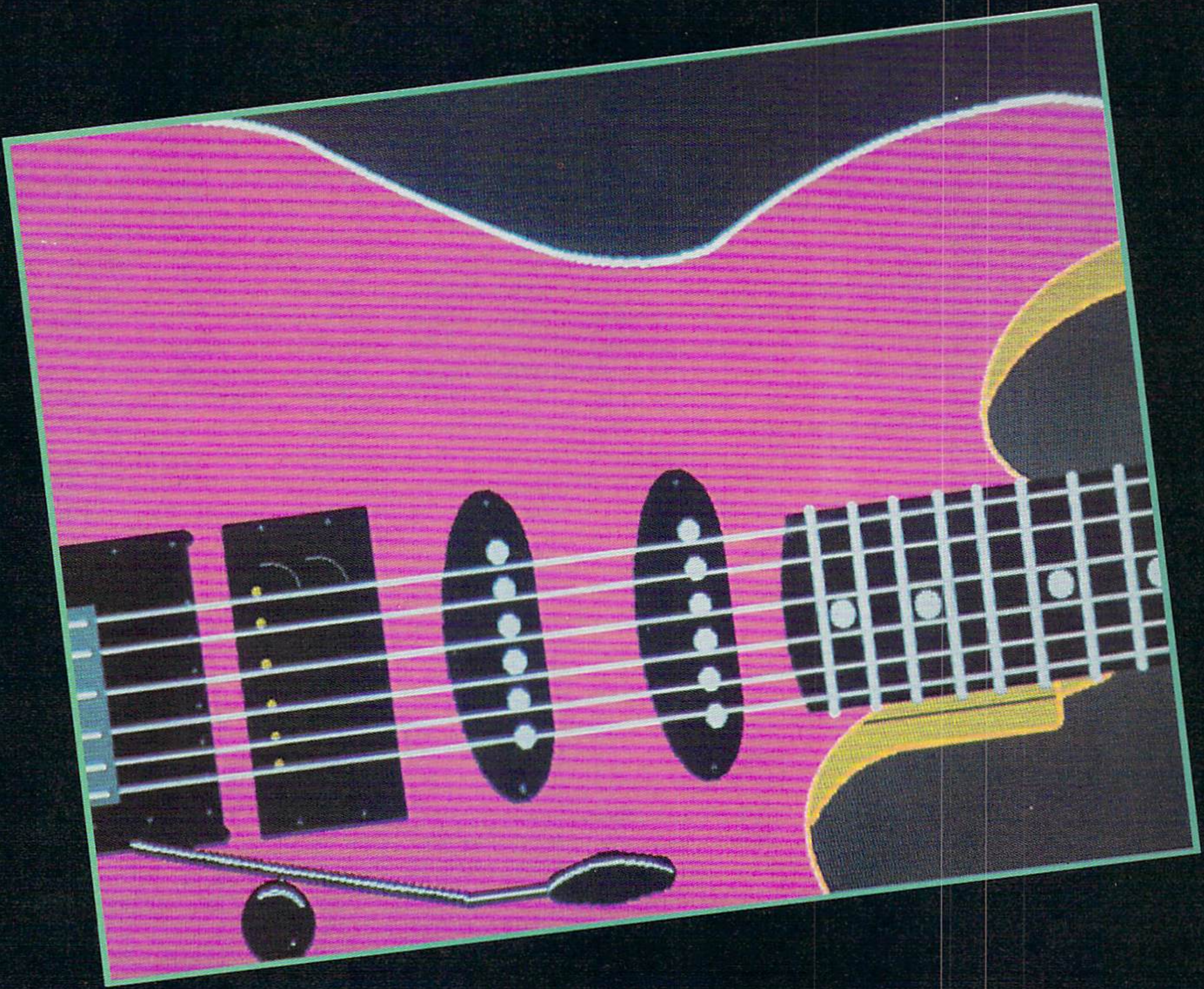




The *Art Gallery* offers an opportunity for fame and fortune to aspiring computer artists. Send your work on disk to Morton Kevelson, P.O. Box 290260, Homecrest Station, Brooklyn, NY 11229-0005. Indicate the drawing package or file format of the images. Graphics produced on the Amiga are eligible for inclusion in *Ahoy!'s AmigaUser:* C-64, C-128, and Plus/4 images are eligible for inclusion in *Ahoy!* If your image is published, you will receive a free one-year subscription. Current subscribers will have their subscriptions extended by one year.

Note that the *Art Gallery* is not a contest. Published pictures are selected in an arbitrary and capricious fashion by the *Ahoy!* Art Director, based solely on their artistic merit.







DATARETRIEVE

Abacus Software
Amiga with 512K
Disk; $79.95

DataRetrieve is a noble attempt on the part of Abacus to provide a quality database for the Amiga, and the attempt almost succeeds. Had the attempt been more noble in some aspects and less noble in others, *DataRetrieve* would undoubtedly have become the database of choice for many of us. As it stands, it is a near miss for those who have sophisticated database needs and a winner for others.

First, the negatives. Though it is at variance with the boot sequence outlined in the documentation, my copy boots directly into the program. As a result, before you can get to WorkBench and set Preferences, you must first open a file and then exit *DataRetrieve*. Set your Preferences, then reopen *DataRetrieve*, then reopen the file, and you're ready to go. It is a small but irritating routine that can probably be corrected by rewriting the s/startup-sequence file, but it is an example of how the writers of the program seem to have their priorities confused.

The same criticism applies to the documentation: though it will eventually tell you everything you need to know, the information is out of order. For example, if you wish to add a field to an existing database, the table of contents will direct you to page 50, where it's assumed that you've already read page 63 and that you understand the mechanics of the act.

The third flaw is that early editions of *DataRetrieve* do not support derived fields or result fields, without which it is not suited for business use. Nor are we told in which edition to expect the expanded support, and this leads to a question almost philosophical: If the early edition fails because we're waiting for the one that has everything, will Abacus find it feasible to issue future editions?

On the positive side: I've often said that any darned fool can create a database but that it takes thought and work to make that database produce intelligible reports. Not so here.

To create a database, give it a title. If *DataRetrieve* cannot locate a file by that name on the disk drive, it will ask if you wish to create a new database. Your positive answer brings up a requestor window that is subdivided into two smaller windows and a text line into which you type the fieldname. Then click on the proper icon in the attribute window, defining the field as text, numerical, date, etc. Press RETURN, and the field name and attribute appears in the larger window.

In this way, a record template is built vertically, and when you are finished adding fields and click on the OK button, the template will be saved to your data disk and the screen will present your first record, ready for data entry.

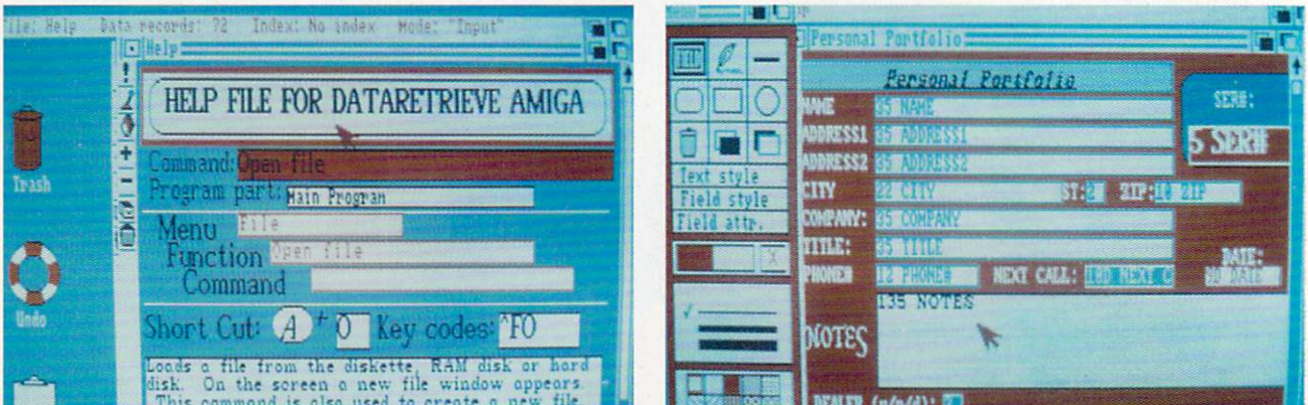
Furthermore, while doing all this, *DataRetrieve* also created three reporting templates for you, one for your printer, one for the monitor screen, and another called "list" in which your information is presented horizontally.

Granted, these may not be exactly the reports you wish—the printer and monitor reports show all fields in template order—but they offer a fine starting point and may be easily altered as soon as you read the scattered sections on editing.

The list report will show only five fields of information, and the default "mask" selects the first five fields of the record template. To change it, go to the editing screen and trashcan the fields you don't wish to use.

You add a new field by drawing an elastic box with the mouse. As soon as you've done this, the screen will flip back to where you originally created your record template and you specify the field you wish by clicking on it. It is short, sweet, and simple, and the other report forms—here referred to as "masks"—may be altered in much the same way. In addition, many report masks may be created for each database

The list report is the only one in which you have math functions, and this is done automatically: if numeric fields exist, they will be totaled. Although all usual math functions are supported, the fact that *DataRetrieve*



DataRetrieve *makes indexing files simple—just click on a field and select Index from the pulldown menu. Multiple indexing can be done the same way, in ascending or descending order.* *READER SERVICE NO. 276*

supports neither derived nor result fields means that you are limited to the math that can be expressed completely within one field; you cannot, as an example, subtract the "Payment" field from the "Balance Due" field.

We've gone into a bit of detail on this operation for two reasons: first, all the information you need to do this may be scattered throughout the documentation; second, it illustrates the graphics-oriented approach taken by *DataRetrieve* for all operations with the exception of data entry.

It is in this last that we feel the noble effort may have been too noble. Granted that the Amiga is a superb graphics computer, we would still rather see effort put into providing a few more sophisticated math features than in providing a graphics interface and the means of coloring and texturizing your reporting screen, or of drawing lines and circles on it.

Indexing of files is as quick and easy as anything else in *DataRetrieve*: click on a field, select Index from the pull-down menu, and it is done. Multiple indexing can be done in the same way, and the order of indexing can be ascending or descending at your choice. Once done, the index for your file appears as a requestor window showing the first 20 characters of the index field. To select a record, scroll through the list until it appears, click on the line, and the entire record appears, ready to be read or altered as necessary.

Sorting records is carried out in much the same way, and there is no practical limit to the depth of sorts that can be performed, since they are, in effect, performed one at a time: Sort by state and that new order is held in memory while you select another sort by zip code, etc.

Nor is there any practical limit to the number of fields per record or the number of records per file, though the capacity of your data disk, whether floppy or hard, will probably provide the limits. It is possible to have as many as 80 index fields per file and to have an index accuracy of up to 999 characters, certainly enough for any use I can think of.

In summing up, *DataRetrieve* is a good program but flawed in its lack of some of the most practical math functions and business functions. We would also like to have seen either less reliance on the graphics interface or better explanations of how it is to be used. There should be limits to the use of so-called universally understood symbols, and I think mine was reached when I discovered a gearshift to toggle between input and output modes and a life preserver to indicate an undo function (think about that one).

Let's hope a future edition cures the ills of both the program and the documentation, and that Abacus will offer reasonable or no-cost upgrades.

Abacus Software, 5370 52nd Street S.E., Grand Rapids, MI 49508 (phone: 616-698-0330). *—Ervin Bobo*

PROWRITE (V. 1.12)
New Horizons Software
Amiga with 512K
Price: $124.95

It seems that every time a new computer is introduced we are bombarded with a myriad of text editing and word processing programs. These software packages have become the timeservers of computers, each demonstrating in their own way the new capabilities of the more powerful systems. *ProWrite* is such a product. It is a hybrid program that combines the two previously isolated domains of plain vanilla text editing and color graphics.

ProWrite 1.12 comes with two different versions of the program on the disk. The first program is the standard interlaced screen version called *ProWrite*. The second program is a new non-interlaced version not offered with version 1.1. Called *ProWrite MR* for "Medium Resolution," this program was created to eliminate the memory limitation problems on an Amiga system with only 512K of memory. Since *ProWrite* is very memory extensive, I recommend that you have at least one full megabyte of memory to optimize the program's performance. One of the advantages of using *ProWrite* in the standard interlaced-screen mode is that you will see your document exactly as it will be printed, making *ProWrite* a "What You See Is What You Get" word processor. This capability will not be available to you if you decide to use the non-interlaced versions of *ProWrite*, since it only has half the vertical resolution of the interlaced screen mode.

Editing Features

ProWrite contains most of the advanced editing features one might desire in a word processor: cut, copy, paste, erase, and all the rest. Also available are enhanced text functions such as boldface, italics, underlining, and superscript or subscript. One of the welcome features of *ProWrite* is that text appears on the screen in accordance with your choices from the character menu, eliminating the special printer codes which most word processors embed in the text to represent enhanced text.

Two commands added to the "Edit" menu of *ProWrite 1.12* permit the user to copy an entire paragraph format to other paragraphs. Text automatically wraps around at the right margin, and the characters are proportionally spaced. Find, change, and replace options are also available to you in the search menu. The environment is the standard Amiga mouse- and keyboard-driven one, complete with windows, menus, and gadgets.

Graphics Power

Graphics capabilities are what set *ProWrite* apart from the rest of the pack. *ProWrite* has the ability to import graphic images from the assortment of popular graphics drawing packages available for the Amiga. These graphic files may be read in, and placed within the document you are editing. When proceeding to load a picture file from the "Open" requestor, a second requestor will prompt you to select the degree of picture shading. Three degrees of picture shading are available (full, partial, and none). The higher the degree of shading you choose, the more the image will blur. Once you have situated your picture within the file, you may decide to further enhance the look for your document by choosing from the palette of colored text available and placing it where desired. After a little experimentation of my own I was able to produce some astounding looking documents with little difficulty.

Input/Output

Disk operations while using *ProWrite* are somewhat slow. The program forces the disk drive each time to first search through the root directory of the

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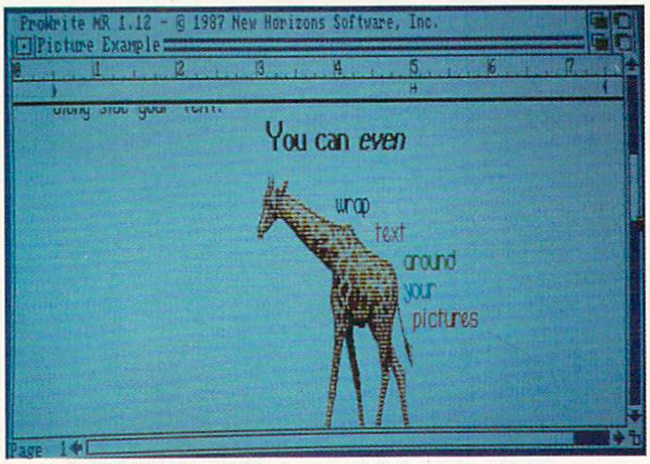
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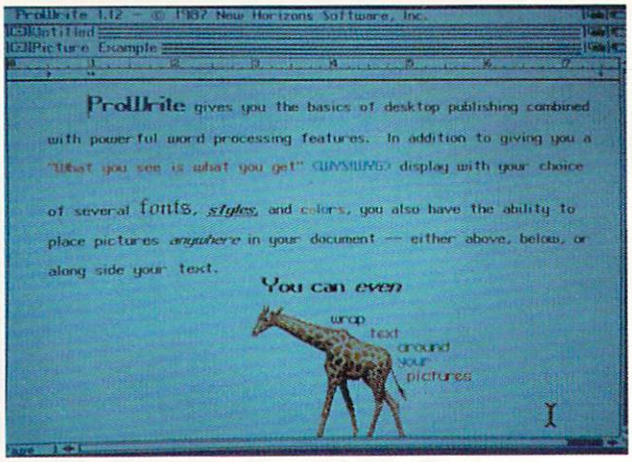
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Screens from medium (left) and high (right) resolution versions of ProWrite. *READER SERVICE NO. 288*

disk before any drive I/O operations can be performed. I found this both tedious and disappointing. The designers could at least have included the option of letting the user type in the name of the subdirectory and of the file before accessing the disk.

The printing of *ProWrite* files is reasonably simple. Make sure that you set the appropriate printer driver in Preferences before printing. The program supports both NLQ and Draft modes via the requestor.

Documentation

The program comes with an easy to read 68-page manual complete with examples and illustrations. Sample files are included on the program disk in the Sample Documents draw. As of this writing, the manual has not been revised for version 1.12. New Horizons software does include a *ProWrite 1.1* update and addendum file on the program disk; also, a photocopied printout of these files is included in the package. One item that was omitted from the addendum and update was the correction to the "dead keys" description. Alt-J and Alt-K are reversed, and Alt-N produces a hyphen, rather than a minus symbol. If you compare the two characters you will see the slight difference.

Conclusion

I found *ProWrite* a very simple to use word processor. A person who has had very little experience with computers and/or word processors should have no trouble at all with this program. If you do run into a brick wall, New Horizons offers a product support hotline that allows registered users to call for technical assistance.

I have seen better quality word processors for the Amiga, some of which include a spell checker and a thesaurus. But they also cost hundreds of dollars, and do not include *ProWrite's* unique graphics embedding ability. *ProWrite* is excellent for producing documents which must integrate word processing with color graphics.

New Horizons Software, Inc., P.O. Box 43167, Austin, TX 78745 (phone: 512-329-6215). *—Michael R. Davila*

EXPRESS PAINT 2.0

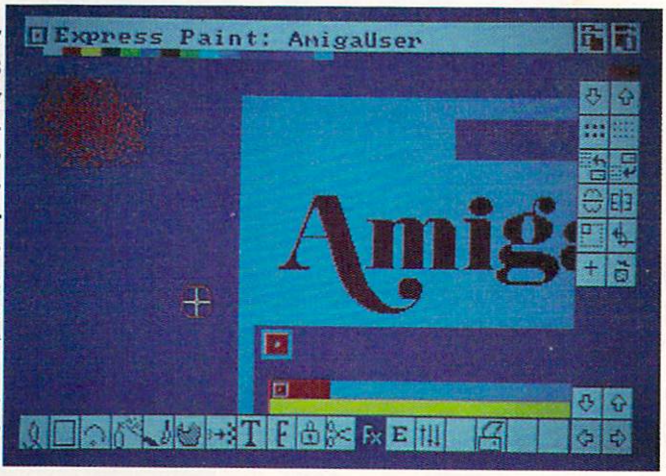
PAR Software, Inc.
Amiga with 512K
Disk; $99.95

Any company that introduces a new painting program in the Amiga format must be aware of this: If you're going to be better, you must be different. The reverse is also true: If you're going to be different, you must be better.

Fortunately for the end user, designers at PAR Software recognized both rules and the result is *Express Paint,* a drawing and painting program that has some of the requisites for desktop publishing. Beginning as a public domain program, *Express 1.1* appeared as published software some months ago. Now there is *Express Paint 2.0,* and with the new features it becomes one of the most powerful painting programs available.

Your first inkling of this comes as you boot the program and are presented with a requestor asking you to specify screen size, page size, and number of colors in the palette. While screen size may be as large as 758 pixels wide by 470 lines high, the scrollable "canvas" of the painting screen will allow for creation of pictures as wide as 1024 pixels and as high as 1000 lines. (If you're wondering how to print a picture that size, it is done through multiple page printing in which the whole is treated as several separate pages that, after printing, can be recombined into poster-size prints.)

In the matter of colors, *Express* sup-



All the choices on Express Paint's *working screen are represented by icons. A few seconds after clicking on the Sketch tool, a new icon menu appears at screen right. READER SERVICE NO. 289*

ports choices of 2, 4, 8, 16, 32 and 64–and thus becomes the first commercial program to allow owners of Amiga 500s, 2000s, and late-model 1000s to utilize the half-bright mode, in which a greater range of shades is available from a single palette.

Another item on this mini-preferences screen is Overlay. This can be toggled on or off, though when it's on the entire program uses less memory. Another effect of this option is that two or more picture files can be called up one after the other and–you guessed it–overlaid.

The differences do not stop there. The working screen shows a toolbox at the bottom of the screen, and it is strange to find that there is nothing on the pulldown menus that has anything to do with painting. In keeping with their title theme of Express, PAR has chosen to represent everything with icons. While this may at first be confusing to those who have used other paint programs on the Amiga, it takes only a short time to get used to it.

Click on the Sketch tool–represented by a freehand line–and after a few seconds of disk access, a new icon menu appears vertically at screen right. Choose either the freehand or the straight-line tool and below it you'll make another choice as to whether you wish to draw a continuous line or one of 15 varieties of broken line. In offering so many choices (including brush size from another menu), *Express Paint* immediately establishes itself as offering more variety than probably anything else you've seen.

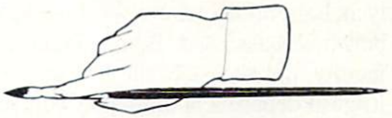
Other tools, such as those for squares, circles and arcs, spray painting, etc., also offer a variety of choices in how the tool can be fine-tuned to your specific needs.

Having selected a tool and fine-tuned it, there is also a difference in how some tools can be used. The Square tool, as an example, uses the familiar rubber-banding technique in which you click on a starting point and, while holding down the mouse button, drag the mouse until the square grows to the size you wish. However, if the square drawn is not in precisely the right place, *Express* has a solution: Before releasing the mouse button, press the left SHIFT key and move the box to wherever you wish.

This same technique works with circles and with filled boxes and filled circles and is a particularly useful aid to those of us who never quite get it right the first time.

The Spraypaint tool is worth mentioning, for it also has some fine-tuning available in addition to the obvious one of dot size and density. Tinting works by either adding foreground color (your chosen spray color) or by subtracting background color; Smudge works by randomly swapping pixels to break up hard outlines; Smear averages the area around the spray to provide a consistent blending; and all effects can be further modified by choosing Brighten or Darken modes.

In the matter of desktop publishing, *Express Paint 2.0* makes it possible to create the text files with *Notepad* or with any word processor that can store files in ASCII format, and all the fonts of *Notepad* are supported. Although it may seem silly to select the graphic "Fill" tool before formatting text, this occurs because the same algorithm is used no matter whether you are filling a shape with paint, pattern, or text, and the benefits should be obvious.



Just in case they are not, we'll point out that in filling with ordinary color you first draw an outline and then either fill it or the area surrounding it. When doing this with text, it would mean your text would appear within the confines of your outline or, alternatively, flow so as to shape itself around the outside of the outline–which could be a circle, square, dune buggy, or any other shape you've drawn.

The drawback to this operation is that, like other desktop publishers, *Express Paint 2.0* requires that a box be drawn into which text can be flowed, and in some cases it may take some experimenting to find the proper sized box.

For those whose chief interest is in desktop publishing, *Express Paint* is one of the few programs to offer support for laser printers. It does this by providing an H-P LaserJet driver (which must be copied into the Preferences file on your Workbench disk) and by providing *PostScript* for laser printers such as the one made by Apple.

It is with laser printers that the multipage option is invoked: this makes it possible to enlarge a drawing as much as six times and then have the result printed out in a form that is as much as four pages wide by four pages high. The pages, each of which holds only a portion of the drawing, would then be combined into one poster-size print either by taping together or by pasting onto a posterboard.

Since *Express Paint 2.0* was not in distribution at the time of this writing, we were furnished with galley proofs of the documentation rather than the finished product. Though there may be some changes, what we have seen is very understandable and is laid out in logical order. Further, for almost every major operation, you are furnished with a step-by-step example in order to help you quickly achieve results.

Though *Express Paint 2.0* will run on machines with 512K, we must point out that memory expansion to at least 1 megabyte will allow better use of the more exotic features of the program, and that two disk drives are required.

The program is copyable and can be installed on a hard disk. Maximum page sizes will depend upon whether you own an Amiga 1000 or one of the two newer models, and the size of the page will also determine the number of colors in your palette.

For those of you who may have purchased *Express Paint 1.1,* the main changes in version 2.0 are *PostScript* compatibility, colorfont support, four new icons in the palette tool, ten new tools for spray painting, new icons, and a new manual with almost twice as much information as the old. Contact PAR Software for information on future upgrades.

Express Paint 2.0 is one of the most powerful and versatile paint programs for the Amiga. The name does not always hold true because of frequent disk access–such as when changing tools–but this is a minor quibble and easily overcome with expanded memory. As a whole, the program is certainly worth your serious consideration.

PAR Software, Inc., P.O. Box 1089, Vancouver, WA 98666 (phone: 800-433-8433 or 206-694-1539).

–Ervin Bobo

Dear Sirs Or WHomever Else It May Concern:

I am a proffesional righter that is looking to break into the world of writing about computers – or should I call it "Universe". While my strong background in aunt farming ,I feel like I can understand binary systems very well. A extraordinery thing about ants; they are binary – either daed or alive – either moving or quite. Irregardless of that won trate, they still show complex signs of complicated behavior.

Although I never wrote for your publilcations before I do have 13 published articals for pay, all thirteen of them. They each has improved my increasing writing capacity w/o affecting the down-to-earthness of my writing. Prolifically I have even turned out 3 of them in just two wks, but also one took over a month of research.

Presently their are three computer areas, which I am currently interested in.

A. AI. Understanding how are the ways we can make ourselves look better.

B. Writing Tools – Utilizing various kinds of different software programs to help us see our writing as others see it (see, I can write highbrow to.)

3. How You Can Make Money With Your Computer, I figure if I write about this conceptually, eventually I'll be able to periodically do it myself.

So, there you have my current interests and know why I should write for you. Will I be able to pick any kind of hard & soft ware or will you just send me what-have-you?

Truely Yours,

REASON

The Other Guys
Amiga with 512K
Disk; $395.00

Well, if we're going to try out a grammar, spelling, and style checking program, why give it a mamby-pamby document to start with. Let's have a real test. (I started to say "a man's test" but that's a sexist phrase and somehow "a person's test" just isn't the same.)

Reason, from The Other Guys, is a licensed version (subset) of the Writer's Workbench, originally developed at AT&T's Bell Laboratory in 1979. As we travel back in time...

Working on a minicomputer running the UNIX operating system, research scientists at Bell put together about two dozen programs with the ambitious goal of analyzing the style of written English. By style, we mean the way ideas are organized, words are chosen, sentences are structured, and actions (verbs) are expressed.

Lorinda Cherry, a computer scientist, designed the foundation of the system – a program to determine the part of speech of each word in an input file. Using a variety of rules and a dictionary of word endings, her program is able to identify parts of speech with up to 96 percent accuracy. That's as good as the average human can do.

A psycholinguist at Bell, Nina McDonald, wrote many of the other programs in Writer's Workbench. These programs can identify abstractions and passive verbs. They can recognize sentence patterns and overly long sentences. And they can check your text's readability (often considered to be the number of years of education necessary to understand the text).

By 1981, Writer's Workbench was in use at Colorado State University where Professor Charles Smith and his colleague Kate Kiefer had begun to use it with freshman composition classes. They opened the Computer Text Analysis Laboratory where Writer's Workbench was assessed. Both students and faculty had access to the lab, and, the English department ultimately concluded, both groups improved their composition skills.

News of this "finding" created a demand at other schools. In response, AT&T marketed its Writing Lab, a combined hardware and software package, for the sum of $28,000.

As of two years ago, AT&T was marketing two software-only versions of the program (at a price in the $1000 range). The Collegiate Edition contained the full 40-program set, but provided the user with only a printout option. The Technical Edition was limited to 25 programs and had the option of screen output. It ran under UNIX, by then available on micros, but still required too much RAM for most micros.

Today, over 60 universities and high schools reportedly use the offspring of Writer's Workbench to aid their academic programs. Over time, the program has become more interactive. But it still bases its analysis on the syntax of language and cannot understand the semantics. In other words, it looks at the structure of our text without considering the story our words convey.

With that in mind, how valuable is a style-checking program like *Reason?* Certainly it is not as immediately valuable as a word processor. Our word processors, however, just allow us to make changes and corrections to our text. They do nothing to guide us.

Spelling checkers and thesaurus programs are guides, but relatively unsophisticated ones. They basically save us the drudgery of page-flipping in a book.

A program that can check grammar and style is the next logical step. *Reason* actually advises you about your writing. It's nothing to take personally. In fact, some of its advice, not understanding the context of your document, will be wrong. Some of the advice *Reason* gives you, however, will provide you with opportunities to evaluate and strengthen your writing.

Reason evaluates your text file, which must be in ASCII or TEXT format, but neither makes nor allows changes to it. Since *Reason's* various critiques are not designed to be run at one time, be prepared to flip from word processor to *Reason* and back again several times.

You'll do all your checking from five of the six main modules. The manual advises that you should start with the style of your text and work your way down to spelling. In other words, you can first rearrange paragraphs and sentences, then restructure and reword sentences, then restructure and reword sentences, then correct diction and punctuation, and finally check spelling. This is a rational approach to reducing editing time.

To give you an idea how your overall text scores, *Reason* will test it against one of two standards developed at Bell Labs or against a standard you develop. The criteria in these standards include sentence and word length, percent of sentence types (from simple to compound-complex), and similar data.

Using these standards, *Reason* will make some general suggestions about breaking up sentences, limiting the use of passive verbs, and reducing the number of nominalizations (verbs used as nouns – "the realization that" instead of "we realized"). *Reason* will also tell

you how your document scores on the Kincaid readability test.

You may want to understand how *Reason* is making some of its judgments. Try having it list your text showing the part of speech that *Reason* believes each word to be. Or list all of the different words in your document, identifying how many syllables *Reason* thinks each one has. The Other Guys claim these functions to be 95 to 98 percent accurate. On our test documents, *Reason* scored in the 90 to 95 percent range—impressive given the complexities or written English.

If your document needs major surgery, you can ask *Reason* for a report on organization. Here, *Reason* will list the first and last sentence of each paragraph. The first should state the topic; the last, a conclusion or transition to the next paragraph. (This report is a good start to writing an abstract of your document.) *Reason* can also generate a list of the 20 most commonly used nouns in your text, so you can determine whether you have focused on the subject you intended.

To tone down your writing, ask *Reason* to print each sentence above any given reading (grade) level. Breaking up those sentences can help make your text clearer. Once you are through at the paragraph level, move into your sentences.

Reason will test whether each sentence in your document uses passive verbs (which reduce reader comprehension and retention), begins with an expletive (such as "It" or "There" with no clear reference), or contains noun nominalizations. Based on these tests, you can reword individual sentences. Now, it's on to the word level.

Using dictionaries of terms, *Reason* can check your text for sexist words, acronyms (including words with improper CApitalization), abstract words, and split infinitives. *Reason* shows you the sentences containing possible nonos, with the offending words *[bracketed]* for visibility, and can offer suggested alternatives.

Last, you may want to run *Reason's* tests for punctuation (which checks for 10 common errors), spelling, and double words. After having made all the previous changes, your text should be nearing final form for these tests.

Reason requires 512K if you boot from the program disk; 1 meg if you run it from the CLI. Version 2.02, reviewed here, is supplied on two disks, but you can run every function from the main disk except changing preferences and building custom standards. The program is not copy protected and does support a hard disk. The license allows you to make a single copy for backup purposes.

I tested *Reason* on two of the sample documents created for PC Magazine's review of IBM-compatible style checkers. It performed similarly to those programs by failing to catch mixed tenses or persons, non-parallel structure, and the inconsistent use of numbers as words and digits. It outperformed those programs by catching words like "advisery" and "greatful" and by allowing me to look at the organization of the documents (even though it made few specific recommendations).

In addition to those documents and our silly opening letter, I ran several serious documents through *Reason*. These ranged from a personal biography for a graduate school application to a legal analysis of a major new state law. *Reason* routinely caught small problems, but gave little direct help with overall style. The analysis of sentence type and the printout of the first and last sentences of paragraphs are tools that the writer can use to work toward better style.

I have a few specific cautions about *Reason*, though I must say that it appears to be bombproof. *Reason* finds vague words even when they are parts of larger words. "Public" may be vague, but should "publications" be flagged? How about "try" when it occurs in "industry"? And, *Reason* listed almost all possessives (words ending with 's) as misspellings.

For double words, *Reason* gives the line number on which they occur rather than showing the sentence containing them. For a few short setences, *Reason* listed the readability as a negative number. The manual gives no hint for interpreting such numbers. In fact, it fails to explain, other than generally, the scoring for any of the four readability tests *Reason* lists in its statistics.

Reason gives you no way to look at the content of a text file, so you will have to be sure to identify your file ahead of time. If you send *Reason's* out-

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The publisher cannot assume responsibility for errors in the above listing.

put to a printer, you may not get page breaks, and you won't get form feeds after some tests. When you send output to a disk file, *Reason* will not warn you if the file already exists. *Reason* just overwrites it instead of adding the output to the end. So if you run four different tests on a document, you will need to send them to four different files.

Reason comes slip-bound in a three-ring notebook familiar to IBM users. The 150 pages of documentation contain a table of contents, glossary, index, setup/tutorial, and alphabetical reference to each program feature. The manual explains much of the process *Reason* uses to analyze your text and gives suggestions on using *Reason's* comments to improve your writing.

You must exercise caution in responding to *Reason's* comments. It will flag every passive verb, but passive verbs have a legitimate use when they change the rhythm of your writing or emphasize the object of an action over the actor. Readability scores can be fickle indicators, too. They are usually based on sentence and word length because those correlate to complexity. But if your document is unreadable, just shortening sentences may not be the solution. In fact, some readability tests will score a sentence the same whether it's written forward or backward.

The most powerful feature of *Reason* is the one people will probably use the least. That's its ability to build custom prose standards and to use custom dictionaries. From any set of documents that you feel represent good writing, *Reason* can build a standard against which you can evaluate your writing. And with a word processor, you can build dictionaries of terms and suggested alternatives. Those terms can represent your personal writing bad habits, colloquialisms, or professional or business usage.

Reason's power lies not in what it can do directly to your text, but in the commitment you make when you use it. If your writing is limited to letters home, this program has little to offer. But if your livelihood depends on the quality and clarity of your writing, *Reason* can make a difference.

If you are an educator, a professional writer, or a businessperson who needs to communicate clearly, you should be concerned about writing style. Whether or not you run right out to buy *Reason*, I can suggest the books listed on this page. Writing is a skill worth a greater investment than a word processor and a dictionary.

Articles on style-checking programs from which much of the history of Writer's Workbench was drawn:

Robin Raskin, "The Quest For Style," PC Magazine, May 27, 1986.

B. Wallraff, "The Literate Computer," The Atlantic Monthly, January 1988.

Reference books on grammar and usage that I find informative and usable:

Michael Montgomery and John Stratton, *The Writer's Hotline Handbook*, 1981, Mentor.

William Strunk Jr. and E. B. White, *The Elements of Style*, 3rd edition, 1979, Macmillan Publishing.

U.S. Government Printing Office, *A Manual of Style*, 1986, Grammercy.

William Zinsser, *On Writing Well*, 2nd edition, 1980, Harper & Row.

Oh, how did we do with that opening letter? After several runs through *Reason* and some common sense human input, the result was as shown below. (But our writer still didn't get the job.)

The Other Guys, 55 North Main Street, Suite 301-D, P.O. Box H, Logan, UT 84321 (phone: 800-942-9402 or 801-753-7620). *—Richard Herring*

Dear Editor:

I am a part-time writer and am absorbed in the world of computers. With my background in ant farming, I can draw analogies between the every day worlds of your readers and the apparently complex behavior of the binary computer. Since I have published 13 articles, I can not only cater to readers, but also meet the deadlines of editors.

Three computer-related topics fascinate me:

1. The prospect that research in artificial intelligence will help us understand the human brain.

2. The use of computer software to check the style of written documents, and

3. Opportunities for the home computer user to earn extra money.

If you would like to see any of those topics fleshed out, I will gladly submit a completed article.

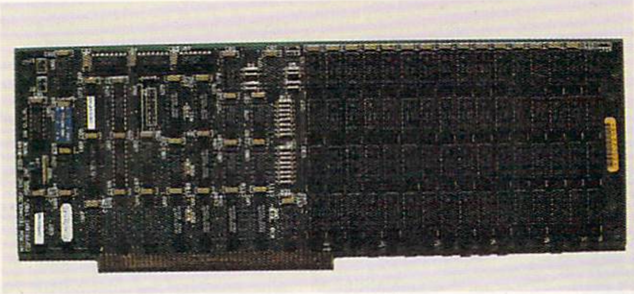
Yours Truly,

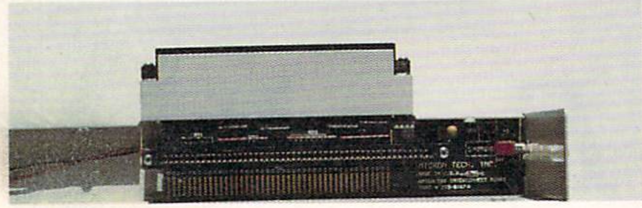
MEMORY EXPANSION BOARD
Micron Technology, Inc.
Amiga 500, 1000, 2000
Prices: see below

Looking back a few years to the infancy of personal computers and the bygone era of the VIC 20, we remember how it seemed inconceivable to have a personal computer with more than 64 kilobytes of RAM. I remember asking myself, "What would I do with all that memory?" Unfortunately, once such machines appeared, it didn't take long to find out just how fast you could fill up all that memory. We can safely say that you can never have enough memory, particularly since the development of multitasking and concurrent DOS.

To satisfy our memory gluttony, Micron Technology has introduced a line of memory expansion boards with zero-wait states for the Amiga computers. The board originally developed by ASDG (see *Ahoy!*, Feb. '87) has been redesigned and upgraded. Micron Technology, already sporting an entire line of memory expansion products for both IBM and the Apple Macintosh, is no newcomer when it comes to memory devices. Available in configurations of one or two megabytes, the expander can be used with any of the Amiga computers, assuming you have the appropriate expansion chassis and power supplies. The review unit that we received was intended to be used with an Amiga 500, and arrived with both the expansion chassis and power supply.

Examining the board reveals four rows of chips, each row containing 16 256 kilobit 100 nanosecond (ns) dynamic RAM chips (DRAMs). On the lefthand side of the board are found four custom PALs (programmed logic array). Some of these chips handle the dynamic RAM's refresh cycle. Dynamic random access memories contain individual cells composed of from one to three MOS transistors plus a capacitor. The cell's state is determined by placing a positive charge on this capacitor. After a period of time this charge begins to leak from the capacitor, so the contents of the individual cell must be rewritten into periodically. Micron Technology is currently working on a one megabit dynamic RAM and expects it to be in mass production some-









Top left: memory board with two megabytes of RAM. Middle: Micron A500 single slot expansion chassis with pass-thru facilities. Bottom: power supply provided with A500 expansion chassis. Top Right: expansion chassis mated with the A500.
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time this year.

Viewing the bottom of the board reveals a 100 pin Zorro type edge connector. This will prevent the board from being attached directly to the computer, unless you own an Amiga 2000. Both the Amiga 500 and 1000 use an 86 pin expansion bus and require an external interface to connect the memory card with the computer.

SRAM v. DRAM

Until very recently static random access memories (SRAMs) were limited in packing desity, due to the fact that the transistors within the memory needed to be isolated from one another. This results in a much lower memory storage capacity for SRAMs than that of DRAMs. The design of SRAMs implements flip-flops for the basic memory element in place of the DRAMs' transistor-capacitor combination cell. One of the advantages of using bipolar static memories over dynamic random access memories is that they provide much faster access times over MOS design memories. On the other hand they cost significantly more money to produce. Also, static memories require a much greater power consumption than dynamic random access memories. A greater implementation of SRAMs will be seen as the demand increases for faster computers with vast amounts of memory. Micron Technology has developed and will be marketing a 256 kilobit SRAM.

Expansion Chassis

Micron is providing two individual expansion chassis for the appropriate Amiga model. Available for the Amiga 1000 is a dual-slot chassis, while Amiga 500 users will have to settle for a single-slot chassis. The housing case is constructed of a metal alloy which, besides providing adequate protection from the physical hazards of computerdom, shields the board and other computer devices against various forms of electronic interference that might be produced. Inside lies the interface card that connects the computer to the memory board. The memory board plugs directly into the slot or slots located here. The interface card also provides pass-thru capabilities so that the memory expander does not tie up the expansion port. This allows you to continue adding memory devices, or other peripherals if desired. Located on the outside of the chassis is an independent power switch for the memory board. This switch must be placed in the on position prior to the Amiga's power up.

Installing the memory board and chassis is relatively simple. The accompanying documentation explains the procedure for all three machines. I found the documentation to be on the skimpy side. Micron could have provided a better-written manual, with more detail to the technical specifications of the board. Also included with the documentation is a disk which contains eight software support programs Among these are three diagnostics tests, for both versions of Workbench 1.1 and 1.2. There is also a program that lets you create, clean, and delete a recoverable RAM disk.

Conclusion

For problems that arise during or after the installation process, Micron Technology has a support number listed in the manual. The technical support personnel are both well-informed and courteous. The memory board also comes with a one year limited warranty. If you complete and return the Warranty Registration information within 30 days of purchase, Micron will extend the warranty by one year.

I found the Micron Technology memory expansion board to be of the highest quality in both design and content. I recommend it to anyone wishing to extend his Amiga's capabilities beyond the one megabyte barrier.

Prices: A2000 1 meg board $495; A2000 2 meg board $595; A500/A1000 1 meg board $550; A500/A1000 2 meg board $650. Both A500 and A1000 boards are shipped with expansion chassis and power supply.

Micron Technology, Inc., 2805 East Columbia Rd., Boise, ID 83706 (phone: 208-386-3800). *—Michael R. Davila*

THE ACCOUNTANT
KFS Software, Inc.
Amiga with 512K
Disk; $299.00

Accounting software can be tough to review; the reviews probably are not light reading either. But consider the programmer. He is caught in the eternal trap among ease of use, flexibility, and speed.

The novice bookkeeper has a tremendous task when he sets out to learn an accounting program. It's not just the software, but bookkeeping that must be learned. Bookkeeping is not like word processing. We all wrote before we got computers, but most of us never had to balance the books.

The experienced businessperson, on the other hand, probably has a bookkeeping routine established, or at least is familiar with the process. This person need not fear the learning. He must, however, face the inevitable tradeoffs accounting software will demand. Can he use his existing chart of accounts? Do the financial reports print out in the most useful format? Will the program handle the volume of transactions expected this year? And the growth in years to come?

The Accountant, while easy enough for the novice to use, is really suited and competent to handle the needs of a medium-size business. The limits of the final version of the program will be:

- 10 check registers (i.e., checking accounts),
- 2000 checks per month (totalling no more than 7000 distributions),
- 99 general journal entries,
- 1000 customers with up to 2000 invoices outstanding,
- 500 vendors with up to 1000 invoices outstanding, sales tracked to up to 99 salespersons,
- 400 employees over a one year period, and
- numbers up to 1 billion.

Since the program uses static arrays, these limits cannot be adjusted by the user. KFS will modify them for a $19.95 fee.

[This review covers the revised beta version of *The Accountant*. All the main features were implemented, but error trapping was not included. By the time we identified shortcomings, most had already been fixed, according to KFS.]

We reviewed the original C-128 version of *The Accountant* in the June '87 issue of *Ahoy!* The Amiga version is substantially improved in its user interface and power. This improvement is not just a function of a more powerful computer, although the Amiga doesn't hurt. The more sophisticated Amiga version of *The Accountant* is aimed at medium-sized businesses, while the 128 version had some features designed for sole proprietorships and other small businesses. Only one of our criticisms of the 128 version holds for the Amiga version: the user still does not have total control over the format of reports.

The Accountant comes on a Workbench disk and uses the standard Amiga Intuition interface. After clicking the disk icon, you get a window with seven icon options. The main modules are the general ledger, daily operations (accounts receivable and payable), and payroll. Utility modules let you change preferences, reset passwords, initialize a printer, or pop up a calculator.

Three Main Modules

The General Ledger module is where you'll set up your company data and chart of accounts, check out account balances, close out the month or year, make journal entries, and print check registers and financial statements (among other things). In the chart of accounts, we liked how sub-accounts were set up and printed differently from master accounts. Telephone, postage, and office supplies can be collapsed into general office expenses.

We were a little concerned by the way accounts must be numbered. Every account must fall in the 101 to 999 range. That seems like plenty. But within that range are subranges within which you must fit your expenses and other categories. Our initial concern was mitigated, however, when KFS told us that a subrange (like sales) can be expanded by decreasing the size of a neighboring range (like capital). Unlike the 128 version, the suggested ranges follow common accounting usage, and most businesses can use these ranges without difficulty.

As you input checks in the general ledger, you can enter either a vendor number or a name and address. This solves a problem in some computer accounting systems that always require a vendor number, even for a one-time purchase, so that your vendor list gets clogged with a lot of undoubtedly nice people with whom you don't do business. The program will print checks for you or you can input details of handwritten checks.

As you enter the various general ledger numbers and corresponding amounts for each check, the amount remaining to allocate to expense categories always shows as a reminder. Once the entire amount of the check is allocated, *The Accountant* automatically moves on to the next check.

Data entry, in general, is a pleasure with *The Accountant*. No separate menu option exists to verify or change data—you do it all from the data entry screen. Nice. Any menu selection that will alter stored data asks you to verify your selection. Data is stored in random files and sort indexes are done on bootup so you should never lose any data. We did notice that when reentering a dollar figure into a field, the old figure is not deleted but is pushed right as the new one is typed in. So you will want to use the F1 option to clear the field.

The 10 check registers will be sufficient for most users. We have seen real estate applications, however, where separate checking accounts needed to be kept for each of several buildings due to differing groups of owners. These companies may need a more specialized program.

Adjusting journal entries can be posted to up to 15 accounts. This should be plenty, with the possible exception of the end of the year when your accounts payable accrual may need more, but then you can just break the accrual into two or more entries.

The Daily Operations module houses sales (including A/R) and purchase (including A/P). In both cases, you enter transactions which *The Accountant* keeps in a batch file. Then, once you have posted, the general ledger automatically picks them up.

Sales invoices can be entered by customer account number or full name and address. Each invoice is limited to 20 sales items (entered on a single line, so only one is visible at a time) and

can be tracked to a salesperson. Totals and tax are automatically calculated, and you can specify credit terms and tax-exempt sales. The screen will remind you which general ledger accounts will be used for freight, tax, and adjustments. The program will print invoices on preprinted forms or on plain paper.

Purchase invoices can include up to 20 general ledger accounts to be charged. As you enter each one, the dollar amount remaining to allocate still shows. *The Accountant* also gives you the flexibility to post to cash-on-hand (petty cash).

If you enter an amount to a non-existent general ledger account, the beta version does not warn you. Instead, it adds that account number to its list, names it an "Invalid G/L Account," and posts the debit or credit. Amounts in that account will be rolled into the nearest master account in the chart of accounts. In the beta version, trial balance printouts would show such invalid accounts only when they were first created, and not subsequently. KFS knew of this problem and says its fix keeps a careful audit trail.

Checks with service charges, discounts, and the like can be correctly posted to the accounts involved. Also, *The Accountant* allows bulleting–if one delivery was fouled up, you can withhold the final payment on it and still pay for subsequent deliveries. Even if you handwrite some checks–inevitable during some Friday afternoon rush –you can still post them to the system.

Aged accounts receivable can be printed by invoice, by due date, or for past due only. *The Accountant* can sort your vendor and customer lists in several ways. We were most impressed with the simple alphabetical sort because you can specify where in each name the program should look when it sorts. If you purchase from The Office Center, you can have it sorted under Office rather than The.

The program's limited on sales invoices should not be a problem, since most prospective purchasers of *The Accountant* should have some idea of the number of customers they expect. Still, it will be wise for such purchasers to consider seasonal fluctuations like our annual December buying binges. (Actually, if you have more than 200 invoices outstanding, you are too big to be doing your own accounting or too close to bankruptcy for this limit to matter.)

Most businesspeople will be less able to estimate the number of their vendors accurately. The 80/20 rule applies here. 80 percent of your purchases will be from 20 percent of your vendors, and vice versa. Foreseeing all the small, one-time purchases you'll inevitably make requires something beyond perfect vision.

The Accountant is not without a bit of humor. Under the "Expenses" heading, you'll find the category "Bills, Bills, Bills"–which is certainly how I feel about them. And the icon for the daily operations (A/R, A/P) module is a little computer screen that says "Is It" before you click and "Friday Yet?" after.

The Payroll module is capable of handling standard deductions for your employees. It also allows three miscellaneous deductions that can be a recurring dollar amount, a percent of gross, or a one-time amount. Payroll integrates nicely with the check register. (Since *The Accountant* cannot anticipate every change that may occur in state formulas for withholding and unemployment, KFS promises to provide direct support to registered users who need a hand with setting this up.)

We were worried about one data field on the employee form. Its code must indicate number of exemptions, married or single, number of pay periods, and expense classification (which G/L accounts to charge pay and benefits to). The importance of entering that code correctly is multiplied by the ease of entering it incorrectly. KFS says that the final program will check that the user enters this code correctly.

Output & Accessories

A wide variety of forms and reports –over 30 in all–are available from the pulldown menus. Without going into a laborious list, we think you will find most of your needs supported. We thought some of the aging reports and histories were especially handy. Reports cannot be customized by the user, however, other than by choosing to print a report on a single check register or ledger account. Actually, users without sophisticated needs may be delighted not to have to design their own formats. The reports included all follow general standards.

One change that would improve flexibility here would be an option to "print" reports to a disk file. That file could then be massaged, using a word processor, into the user's preferred format. *The Accountant* will ship set up for Epson printers, but it has few printer codes so you may not have to scrounge a different driver off your Workbench disk even if you have some other printer. You have the option to print invoices and checks to plain paper or to forms. KFS has arranged for another company to make forms available directly to the user (ex. 1000 checks for $105).

A *calculator* is a dandy thing to have handy whenever you're doing numbers. Including one with *The Accountant* was a good idea, but we might wish for more sophistication. This calculator can add, subtract, multiply, divide, and clear–that's it. It has no memory, it has no "tape." You may quickly find yourself scouring your public domain disks for a better calculator. Or better yet, grab one of the fine calculators from Digital Creations' *Gizmoz.*

The Accountant has adequate password protection for businesses where several people have access to the "books," but each of them does not need (or should not have) total access. Each of the three main modules–general ledger, daily operations, and payroll–requires a password. Then, for each pulldown menu, a password is necessary to access the features that can make the kinds of permanent changes that only the boss should make. These include certain features in the general ledger (such as annual closeout and chart of accounts), sales, expenses, employee files, and (a feature not included yet) inventory.

Documentation & Support

We were not able to review the documentation, but KFS told us that the final docs would address the two problems we raised with the original 128 version's manual–the need for more thorough editing and more screen shots. With those changes made, we expect the documentation to support the program quite well.

Documentation, not matter how

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AMIGAUSERTERM

A Little Bit of Amiga BASIC Reaches the Outside World Without Leaving Home



By George Sokolowsky and Paul Maioriello

The Amiga, among its many acclaimed attributes, has been blessed with a fairly standard RS-232C serial port. This feature, when combined with a terminal program, allows the Amiga to communicate with many other computer systems from commercial online services operating on large mainframes to the many bulletin board systems running on the smallest micros. This article includes such a terminal program and demonstrates some of the power and flexibility of Amiga BASIC.

We elected to write in Amiga BASIC not just because it comes standard with every Amiga, but because it provides many of the features found in advanced and structured languages. This program is also very easy to run because it takes full advantage of the Amiga mouse, pull-down menus, multiple windows, and requesters. In short, it runs like other programs that use the Amiga's standard user interface, Intuition.

To start, load and run Amiga BASIC, type in the program listing, and save it with a suitable name. Finally, run the program. If you get errors, carefully compare each line you entered against the listing, correcting errors as you go. Remember, save the program after you make corrections so you don't accidentally lose your hard work! While entering and correcting the program, be sure to take a moment to appreciate the pleasing look of an Amiga BASIC program. Gone are line numbers and confusing PEEKs and POKEs. Instead we have named subroutines and logic that is easier to follow. It is also much easier to spot mistakes, since there are meaningful variable names and reserved words. Amiga BASIC makes it possible to type in programs and get them running without necessarily requiring typing proofreaders such as *Bug Repellent.*

When you are ready to go, run the program under Amiga BASIC. You will first see the *AmigaUserTerm* window pop up on its own screen. Move the mouse pointer to the upper left corner and click and hold the right mouse button while positioning the pointer to the desired "Baud Rate." Once the speed is selected, release the button. Notice the "Settings and Options" window appear in the lower right hand portion of the *AmigaUserTerm* window. This window serves to verify the options you select as you run the program. To clear this window you just click the left mouse button anywhere in the main window.

Move the pointer to the "Parity" menu option next to "Baud Rate." Select the desired parity and clear the "Settings" window. You may save these settings and others by pointing to the 5th. menu option labeled "Misc." Select the "Save" option so next time you can go to "Misc" and "Load" the settings you just saved.

If you have a printer connected to your Amiga, you can select the "Printer" menu "Capture On" and "Capture Off" options to log the action on the screen to your printer. Be sure to have the printer powered up and online before selecting this option!

Maybe you don't care to tie up your printer now but still want to log the session on disk. Simply select the "File" option from the menu and the "Log On" function to log the session to the file "term.log" in the current directory. To toggle the logging off and close the "term.log" file, use the "Log Off" function from the menu.

AmigaUserTerm also has a simple file transfer capability which allows you to exchange ASCII files with other computers. Suppose you dial into a bulletin board and there's a file on it you'd like to download. Select the "File" menu "Capture On" option. Instruct the remote computer to begin sending. When the send is complete, select "Capture Off." You now have the file from the remote system in a file called "term.capture" in the current directory on your Amiga.

To send a file, select the "File" menu "Send" option. This selection brings up a requester in which you can enter the name of the file to send or a default file "sfile" will be sent. If the file is not found, an error message will be displayed. If a file is found, *AmigaUserTerm* begins sending the selected file to the remote computer.

The "Misc" menus also allows you to establish a dialing prefix and a phone number to be used in autodialing. These values are used to automatically dial another system. This

same menu includes the autodialing option that uses the established settings. Once you set things up be sure to save your settings. This will make getting online as easy as selecting a few menu options on your Amiga (and we all know how easy that is).

Before exiting *AmigaUserTerm*, select the "Misc" menu and give the "Show Who" option a try. To clear this window, left click in any "Thanks" box. Finally, select the "Quit" option to exit from *AmigaUserTerm* back to BASIC.

There you have it. This basic BASIC terminal program can be enhanced in so many ways – it's just a beginning on which you can build. It has a little bit of everything to show just some of what you, the Amiga, and a little bit of BASIC can do. □

Caution! Read your Amiga BASIC manual and familiarize yourself with your computer's screen editor before entering the following program, or you're in for one miserable time!

While we won't teach Amiga BASIC over the phone, we will assist readers who have done the necessary background work and encounter problems entering *AmigaUserTerm*. Call 212-239-6089 (if busy or no answer after three rings, 212-239-0855) weekdays between 8:30 and 4:30, EST.

```
CLEAR
ON ERROR GOTO stderr.proc
MOUSE ON:ON MOUSE GOSUB mouse.proc
SCREEN 2,640,200,2,2
WINDOW 2,"AmigaUserTerm",(0,12)-(617,180),22,2
GOSUB init.menus
GOSUB init.vars
MENU ON
ON MENU GOSUB menuhandler
CLS
LOCATE 1,1
GOSUB open.port
WHILE WINDOW(0) > 1 OR WINDOW(0) < 7
 WHILE WINDOW(7) <> 0
  WHILE LOC(1)<>0
    i$ = INPUT$(1,1)
    PRINT i$;
    IF  printon% THEN PRINT #3,i$;
    IF logon% THEN PRINT #4,i$;
    IF captureon% THEN PRINT #5,i$;
  WEND
  i$=INKEY$
  IF i$<>"" THEN PRINT #1,i$;
  IF i$<>"" AND logon% THEN PRINT #4,i$;
  WEND
WEND
MENU RESET
STOP

stderr.proc:
  PRINT "ERROR NO. : ";ERR
  WINDOW CLOSE 2
  SCREEN CLOSE 2
  CLOSE
  MENU RESET
  STOP

mouse.proc:
  MOUSE OFF
  m=MOUSE(0)     'we know mouse was clicked save left button status
  a=MOUSE(3):b=MOUSE(4)     'get x y coordinates
  IF WINDOW(0) = 2 THEN GOSUB w2.mouse
  IF WINDOW(0) = 3 THEN GOSUB w3.mouse
  IF WINDOW(0) = 4 THEN GOSUB w4.mouse
  IF WINDOW(0) = 5 THEN GOSUB w5.mouse
  IF WINDOW(0) = 6 THEN GOSUB w6.mouse
  MOUSE ON
  RETURN

menuhandler:
  MENU OFF
  menuid=MENU(0)
  menuitem=MENU(1)
  GOSUB process.selection
  MENU ON
  RETURN

open.port:
  port.name$="com1:"+speed$+","+parity$+","+"7"+","+"1"
  OPEN port.name$ AS #1
  RETURN

process.selection:
  IF menuid=1 THEN
    IF menuitem=1 THEN
     speed$="300"
    ELSEIF menuitem=2 THEN
     speed$="1200"
    ELSEIF menuitem=3 THEN
     speed$="2400"
    ELSEIF menuitem=4 THEN
     speed$="4800"
    ELSEIF menuitem=5 THEN
     speed$="9600"
    END IF
    CLOSE #1
    GOSUB open.port
  ELSEIF menuid=2 THEN
    IF menuitem=1 THEN
     parity$="e"
    ELSEIF menuitem=2 THEN
     parity$="o"
    ELSEIF menuitem=3 THEN
     parity$="n"
    END IF
    CLOSE #1
    GOSUB open.port
  ELSEIF menuid=3 THEN
    IF menuitem=1 THEN
     GOSUB send.file
    ELSEIF menuitem=2 THEN
     GOSUB capture.on
    ELSEIF menuitem=3 THEN
     GOSUB capture.off
    ELSEIF menuitem=4 THEN
     GOSUB turnon.log
    ELSEIF menuitem=5 THEN
     GOSUB turnoff.log
    END IF
  ELSEIF menuid=4 THEN
    IF menuitem=1 THEN
     GOSUB printer.on
    ELSEIF menuitem=2 THEN
     GOSUB printer.off
    END IF
  ELSEIF menuid=5 THEN
    IF menuitem=1 THEN
      GOSUB get.prefix
  ELSEIF menuitem=2 THEN
    GOSUB get.dial
  ELSEIF menuitem=3 THEN
    GOSUB auto.dial
  ELSEIF menuitem=4 THEN
    GOSUB get.proc
  ELSEIF menuitem=5 THEN
   GOSUB save.proc
  ELSEIF menuitem=6 THEN
   GOSUB requester.make
  ELSEIF menuitem=7 THEN
    GOSUB show.dudes
  ELSEIF menuitem=8 THEN
    WINDOW OUTPUT 1:WINDOW 1:WINDOW CLOSE 2:MENU RESET:SCREEN CLOSE 2:STOP
  END IF
END IF
IF ((menuid <> 5) OR (menuid = 5 AND (menuitem =4 OR menuitem = 5))) THEN
   IF NOT(menuitem = 1 AND menuid = 3) THEN
      GOSUB requester.make
   END IF
END IF
RETURN

send.file:
   MENU OFF
   y=1
   send.status%=no%
   WINDOW 5,"SEND FILE",(150,75)-(450,125),2 ,2
   LOCATE 2,3
   PRINT "File"
   LINE(58,6)-(258,16),,b
   LOCATE 2,9
   PRINT send.default$
   LINE (28,38)-STEP(64,10),3,b
   COLOR 3,1
   LOCATE 6,7:PRINT "OK";
   LINE (216,38)-STEP(64,10),3,b
   LOCATE 6,29:PRINT "CANCEL";
   COLOR 0
   send.file$="":file.name$=""
```

```
    select.status%=undefined%
    GOSUB get.file
    send.file$=file.name$
    IF select.status%=cancel% THEN
       send.status%=no%
       GOTO sendfile.exit
    ELSE
       send.status%=yes%
    END IF
    IF file.name$="" THEN send.file$=send.default$
    file.status%=ok%
    GOSUB open.input
    IF file.status% <> ok%  THEN
       send.status%=no%
       GOTO sendfile.exit
    END IF
    WINDOW OUTPUT 2
    WINDOW CLOSE 5
    WHILE NOT EOF(7)
      IF LOC(1) = 0 THEN
        a$=INPUT$(1,7):PRINT #1,a$;
        WHILE LOC(1) = 0:WEND
        WHILE LOC(1) <> 0
          i$=INPUT$(1,1):PRINT i$;
          FOR pause=1 TO 2:NEXT pause
        WEND
      END IF
    WEND
    CLOSE 7
 sendfile.exit:
    WINDOW OUTPUT 2
    WINDOW CLOSE 5
    y=0
    MENU ON
    RETURN

 capture.on:
   IF captureon%=no% THEN
     captureon%=yes%
     OPEN capture.file$ FOR OUTPUT AS #5
   END IF
   RETURN

 capture.off:
   IF captureon%=yes% THEN
     captureon%=no%
     CLOSE #5
   END IF
   RETURN

 turnon.log:
   IF logon%=no% THEN
     logon%=yes%
     OPEN log.file$ FOR OUTPUT AS #4
   END IF
   RETURN

 turnoff.log:
   IF logon%=yes% THEN
     logon%=no%
     CLOSE #4
   END IF
   RETURN

 printer.on:
   IF printon%=no% THEN
     printon%=yes%
     OPEN "lpt1:" FOR OUTPUT AS #3
   END IF
   RETURN

 printer.off:
   IF printon%=yes% THEN
     PRINT #3,i$
     printon%=no%
     CLOSE #3
   END IF
   RETURN

 init.menus:
    MENU 1,0,1,"Baud Rate"
    MENU 1,1,1,"300"
    MENU 1,2,1,"1200"
    MENU 1,3,1,"2400"
    MENU 1,4,1,"4800"
    MENU 1,5,1,"9600"
    MENU 2,0,1,"Parity"
    MENU 2,1,1,"Even"
    MENU 2,2,1,"Odd"
    MENU 2,3,1,"None"
    MENU 3,0,1,"File"
    MENU 3,1,1,"Send"
    MENU 3,2,1,"Capture On"
    MENU 3,3,1,"Capture Off"
    MENU 3,4,1,"Log On"
    MENU 3,5,1,"Log Off"
    MENU 4,0,1,"Printer"
    MENU 4,1,1,"Capture On"
    MENU 4,2,1,"Capture Off"
    MENU 5,0,1,"Misc"
    MENU 5,1,1,"Dial Prefix"
    MENU 5,2,1,"Phone Number"
    MENU 5,3,1,"Auto Dialer"
    MENU 5,4,1,"Load Settings"
    MENU 5,5,1,"Save Settings"
    MENU 5,6,1,"Show Settings"
    MENU 5,7,1,"Show Who"
    MENU 5,8,1,"Quit"
    RETURN

 init.vars:
    log.file$="term.log"
    capture.file$="term.capture"
    send.default$="sfile"
    speed$="1200"
    parity$="n"
    prefix$=""
    phone.numb$=""
    undefined%=2
    cancel%=1
    yes%=1
    ok%=no%=0
    captureon%=no%
    printon%=no%
    logon%=no%
    speed.duration=25
    RETURN

 save.proc:
    OPEN "settings" FOR OUTPUT AS 2
    WRITE #2,speed$,parity$,prefix$,phone.numb$
    CLOSE 2
    RETURN

 get.proc:
    OPEN "settings" FOR INPUT AS 2
    INPUT #2,speed$,parity$,prefix$,phone.numb$
    CLOSE 2
    RETURN

 requester.make:
    WINDOW 3,"Current Settings and Options",(315,115)-(615,179),16,2
    LOCATE 1,1
    PRINT "BAUD RATE IS:        ";speed$
    PRINT "PARITY SETTING IS:   ";
    IF parity$="n" THEN
      PRINT "none"
    ELSEIF parity$="o" THEN
      PRINT "odd"
    ELSEIF parity$="e" THEN
      PRINT "even"
    END IF
    PRINT "FILE CAPTURE IS:     ";
    IF captureon% THEN
      PRINT "active"
    ELSE
      PRINT "not active"
    END IF
    PRINT "SESSION LOGGING IS: ";
    IF logon% THEN
      PRINT "active"
    ELSE
      PRINT "not active"
    END IF
    PRINT "PRINTER CAPTURE IS: ";
    IF printon% THEN
      PRINT "active"
    ELSE
      PRINT "not active"
    END IF
    PRINT "FILE SEND IS:        ";
    IF send.status% THEN
      PRINT "active"
    ELSE
      PRINT "not active"
    END IF
    PRINT "DIAL PREFIX IS:      ";prefix$
    PRINT "PHONE NUMBER IS:     ";phone.numb$;
    WINDOW OUTPUT 2
    RETURN

 show.dudes:
    WINDOW 4,,(150,75)-(450,125),0,2
    AREA(0,0):AREA(299,0):AREA(299,59):AREA(0,59)
    AREAFILL
    LOCATE 2,4:PRINT "Written For Ahoy!'s AmigaUser"
    LOCATE 3,18:PRINT "by"
    LOCATE 4,2:PRINT "George Sokolowsky & Paul Maioriello"
    COLOR 0
    LINE(28,38)-STEP(64,18),3,b
    COLOR 3,1
    LOCATE 6,5:PRINT "THANKS";:LOCATE 7,5:PRINT "GEORGE";
```

```
    LINE(118,38)-STEP(64,18),2,b
    COLOR 2,1
    LOCATE 6,17:PRINT "THANKS";:LOCATE 7,18:PRINT "A.U.";
    LINE(208,38)-STEP(64,18),0,b
    COLOR 0,1
    LOCATE 6,28:PRINT "THANKS";:LOCATE 7,29:PRINT "PAUL";
    MENU OFF
    z=1:WHILE z=1:SLEEP:WEND    'wait for a mouse event
    MENU ON
    WINDOW OUTPUT 2
    WINDOW CLOSE 4
    RETURN

w2.mouse:
  IF z=1 THEN BEEP:WINDOW 4:RETURN
  IF x=1 THEN x=0:WINDOW CLOSE 6:RETURN
  IF y=1 THEN BEEP:WINDOW 5:RETURN
  WINDOW OUTPUT 2
  WINDOW 2
  WINDOW CLOSE 3
  RETURN

w3.mouse:
  BEEP:WINDOW 3
  RETURN

w4.mouse:
  z=0
  IF (a>28 AND a <92) AND (b>38 AND b<56) THEN GOSUB George:RETURN
  IF (a>118 AND a <182) AND (b>38 AND b<56) THEN GOSUB AmigaUser:RETURN
  IF (a>208 AND a <272) AND (b>38 AND b<56) THEN GOSUB Paul:RETURN
  BEEP
  z=1
  RETURN

w5.mouse:
   IF(a>28 AND a<92) AND (b>38 AND b<48) THEN
      WINDOW OUTPUT 2
      select.status%=ok%
      RETURN
   ELSEIF (a>216 AND a<280) AND (b>38 AND b<48) THEN
      WINDOW OUTPUT 2
      select.status%=cancel%
      RETURN
   END IF
   RETURN

w6.mouse:
  IF x=1 THEN BEEP:WINDOW 6
  RETURN

George:
  LINE(28,38)-STEP(64,18),3,bf
  z=0
  RETURN

AmigaUser:
  LINE(118,38)-STEP(64,18),2,bf
  z=0
  RETURN

Paul:
  LINE(208,38)-STEP(64,18),0,bf
  z=0
  RETURN

get.file:
   IF (select.status%=ok%) OR (select.status%=cancel%) THEN RETURN
   a$=INKEY$
   IF a$<>"" THEN
     IF file.name$ = "" THEN LOCATE 2,9 :PRINT STRING$(24," ");
     IF a$ > CHR$(32) AND LEN(file.name$) < 24 THEN
         file.name$=file.name$+a$
         LOCATE 2,9:PRINT file.name$;
     END IF
     IF a$ = CHR$(8) AND LEN(file.name$) > 0 THEN
       file.name$ = LEFT$(file.name$,LEN(file.name$)-1)
       LOCATE 2,9:PRINT file.name$;
     END IF
     IF a$=CHR$(13) AND LEN(file.name$) > 0 THEN select.status%=ok%:RETURN
     GOTO get.file
   ELSE
     GOTO get.file
   END IF

open.input:
   ON ERROR GOTO senderr.proc
   OPEN send.file$ FOR INPUT AS 7
   IF (file.status%>=50) AND (file.status%=<255) THEN
      WINDOW OUTPUT 2
      WINDOW CLOSE 5
     GOSUB report.err
   END IF
   ON ERROR GOTO stderr.proc
   RETURN

senderr.proc:
   file.status%=ERR
   RESUME NEXT

report.err:
   WINDOW 6,"Error Message",(150,75)-(450,125),0,2
   LOCATE 3,5
   IF file.status% THEN
   BEEP
      PRINT "Error ";file.status%;
      IF file.status%=53 THEN PRINT  ": File Not Found .."
      IF file.status%=51 THEN PRINT  ": BASIC internal .."
      IF file.status%=57 THEN PRINT  ": Disk I/O Error .."
      IF file.status%=58 THEN PRINT  ": File Already Exists .."
      IF file.status%=61 THEN PRINT  ": Disk is Full .."
      IF file.status%=64 THEN PRINT  ": Bad File Name .."
      IF file.status%=70 THEN PRINT  ": Disk Write Protected .."
   END IF
   LOCATE 5,5
   PRINT "Click Left Mouse Key to Continue"
   x=1:WHILE x=1:SLEEP:WEND
   WINDOW OUTPUT 2
   WINDOW 2
   RETURN

get.prefix:
   MENU OFF
   y=1
   WINDOW 5,"DIAL PREFIX",(150,75)-(450,125),2 ,2
   LOCATE 2,1
   PRINT "Prefix"
   LINE(58,6)-(258,16),,b
   LOCATE 2,9
   PRINT prefix$
   LINE (28,38)-STEP(64,10),3,b
   COLOR 3,1
   LOCATE 6,7:PRINT "OK";
   LINE (216,38)-STEP(64,10),3,b
   LOCATE 6,29:PRINT "CANCEL";
   COLOR 0
   select.status%=undefined%
   file.name$=""
   GOSUB get.file
   IF select.status%=cancel% THEN
      GOTO prefix.exit
   ELSE
      prefix$=file.name$
   END IF
prefix.exit:
   GOSUB requester.make
   WINDOW OUTPUT 2
   WINDOW CLOSE 5
   y=0
   MENU ON
   RETURN

get.dial:
   MENU OFF
   y=1
   WINDOW 5,"PHONE NUMBER",(150,75)-(450,125),2 ,2
   LOCATE 2,1
   PRINT "Number"
   LINE(58,6)-(258,16),,b
   LOCATE 2,9
   PRINT phone.numb$
   LINE (28,38)-STEP(64,10),3,b
   COLOR 3,1
   LOCATE 6,7:PRINT "OK";
   LINE (216,38)-STEP(64,10),3,b
   LOCATE 6,29:PRINT "CANCEL";
   COLOR 0
   select.status%=undefined%
   file.name$=""
   GOSUB get.file
   IF select.status%=cancel% THEN
      GOTO dial.exit
   ELSE
      phone.numb$=file.name$
   END IF
dial.exit:
   GOSUB requester.make
   WINDOW OUTPUT 2
   WINDOW CLOSE 5
   y=0
   MENU ON
   RETURN

auto.dial:
  do.string$=prefix$+phone.numb$
  strlen%=LEN(do.string$)
  FOR lenchar%=1 TO strlen%
    PRINT #1,MID$(do.string$,lenchar%,1);
    FOR pause%=1 TO 25:NEXT pause%
  NEXT lenchar%
  PRINT #1,CHR$(13)
  RETURN
```

Continued from page 72

good it is, seems never to be enough to handle every situation. On the one hand, it's a pain to have to dig out the manual when you forget the format of some data field. On the other hand, you'll eventually come up with some situation or need that could not have been foreseen by even the most thorough documentation.

KFS addresses both situations. *The Accountant* has over 100 help windows (about 6 by 30 characters of text) that are instantly available to describe the purpose and format of whatever field the cursor occupies. More important, KFS will offer a club membership—for a mere $24.95—that will give you telephone access to the programmer and entitle you to upgrades for $9.95. Major upgrades planned for this year include the addition of inventory and job cost features and a cash register option (with UPC scanning) to be integrated with inventory.

The Accountant requires 1 meg of RAM. The daily operations module eats something over 700K. If you want to multitask these modules, plan to have 2 megs or more. But, as powerful as this program is, it does not require a hard disk. You can live with a single floppy and life's a breeze with two.

When we first booted *The Accountant*, we noticed the message "Compiled with A/C BASIC from Absoft Corp." Now nothing's wrong with compiled BASIC, but we were fearful that a big program handling lots of data could be sluggish. We were pleasantly surprised. Within each of the three main modules, the programmer has pushed each data screen to the max. When you're entering data, reviewing previous data takes just a couple of keystrokes.

Based on the number of accounting programs we see for virtually every microcomputer, it appears that users can't settle on a few standards as they often do with word processors and spreadsheets. With accounting this may be appropriate given the huge range of sizes and types of businesses. No program can accommodate every quirk that you want your system to include and still have any degree of ease of use for different users to be able to get their new systems running.

Computers do make bookkeeping much easier, and produce simple forms of accounting statements automatically. But to do so, the system must be properly configured. This means you'll have to learn some accounting basics, such as debits and credits, the chart of accounts, and what an income statement and balance sheet mean. If you're not knowledgeable about these, get help in setting up your system. Once set up properly, the system can be run by someone without advanced training. If not set up properly, G.I.G.O. will get you.

What we see in *The Accountant* is its author's attitude toward software, that software is not a product for the user to purchase but rather a service to enable the owner to use the computer to its fullest extent.

For the Amiga, the standard in accounting programs may soon appear on your dealer's shelves. Based on this beta test version, we believe that a small to medium-sized business operating an accounting system on an Amiga may not need to look any farther than *The Accountant* from KFS Software. If in fact all modules are developed within the promised timeframes, many people currently doing accounting on their Amigas may find themselves shifting over to *The Accountant*.

KFS Software, Inc., P.O. Box 107, Largo, FL 34649-0107 (phone: 813-584-2355). *—Richard Herring*

PROFESSIONAL PAGE 1.0
Gold Disk
Amiga with 1 megabyte
Two disks; $149.95

Read all about it! Read all about it! Amiga desktop publishing goes big time! Though not in those exact words, it's a good approximation of the marketing hype which accompanies this program. Released as a high end, multitasking followup to their own *PageSetter,* this unprotected two disk set requires DOS 1.2 and any Amiga with at least 1 Meg of RAM. A second floppy or a hard drive is recommended.

The package also includes a well-organized, multipart manual and a quick reference card which prominently displays keyboard command equivalents, formatting instructions, and the customer hotline telephone number with its hours of operation. An errata sheet addresses incorrect passages in the manual as well as the reference card. It also describes features added after the manual was printed and hard disk installations and operation procedures. In other words, it has all the earmarks of a first class program.

Headline News

Though *Pro Page* is page-oriented, that is, works best one page at a time, it accommodates document orientation (for catalogs, term papers, books, and other lengthy publications) by accepting text format commands entered in any of the word processors it supports. (See sidebar on page 78—*Professional Page* Partners.)

Besides, a relatively full featured word processor is included. Electronic publishers now have a choice—use the word processor they are most familiar with and import the text into *Pro Page*, or enter text on the fly during the layout cycle. While it may differ from user to user, the internal word processor seems better suited for entering short passages or editing imported files once they are in place.

In addition to its layout and text entry capabilities, *Pro Page* sports a versatile drawing program, complete with an icon tool box. From here it is just a small leap (only a few points to be exact) to font editing. Yes, the draw routines can be used to modify downloaded fonts! While not as advanced or feature-laden as a dedicated font editor like *The Calligrapher*, this ability can be very handy in situations where minor adjustments are needed, time is short, or you do not have a "professional" font editor.

Tools of the Trade

The *Pro Page* screen mimics the art board used by graphic artists. The actual document being assembled normally takes up a third or less of the display. This workbench approach simulates the way real artists do their jobs every day—with the significant added benefits of computerized graphic and text manipulation.

The text, layout, and draw icons reside on the right of the screen; other functions are activated from the menu bar. The entire display is black on white, in 640 by 400 pixel interlace mode, a design necessity which results

in noticeable amounts of screen flicker. There are several solutions to this problem—ignore it, install a flicker fixer program, tack an overlay filter on the monitor, or buy a better monitor. Remarkably enough, the first solution may work for many—after working with the program for about 10 or 15 minutes the flicker seems to disappear. It's still there of course, it's just not that noticeable.

Read Me First

Typical computerists are too busy to read the manual in any detail—just boot and shoot! That approach may work well enough with games, utilities, and simple business applications, but it doesn't work here. Even experienced desktop publishers should spend some time with the manual.

After setup instructions and a brief introduction comes a 40 page tutorial on how to create a two page newsletter. Menus and tool usage are explained with cohesive examples. The entire process flows, just as easily as the text can be made to flow from one box or one page to another. Importation of text, bitmap, and structured drawing files is covered, making good use of the sample files loaded onto disk two.

Every so often the otherwise excellent tutorial goes awry. When told to select the impermeable box gadget (to alter a box's display characteristics), one is left holding the proverbial bag. Unlike similar instances, there is no screen dump to identify the proper gadget. Bewildered students have to access the reference section to get a clear understanding of the gadget's appearance.

In addition, the section on importing text is a little fuzzy. Following the process to the letter of the law didn't get me anywhere. After a little trial and error I determined that the text icon must remain selected (to insure you are in text mode). Also, the cursor must be in the box where text is to be placed. After the file has been selected (and automatically placed into the text buffer), you must select the paste option on the Edit menu. Then, and only then, will the text flow. The tutorial is not clear on this process, as I consciously left the text mode before completing the process. However, neither of these obstacles is a real problem. They just make life a little more interesting.

Professional Page Partners

On the word processor front, *Pro Page* accepts generic ASCII text, something almost every Amiga processor is capable of producing. As far as proprietary file structures are concerned, however, it accepts material produced in *WordPerfect, Scribble, TextCraft,* and *TextCraft Plus* formats.

Where bit mapped graphics are concerned, *Deluxe Paint II, Aegis Images, GraphiCraft,* and the *Grabbit* screen capture utility are supported. *Digi-Paint* (HAM) and *Digi-View* are included as well as work done with *The Easyl.* Almost any industry-standard paint program can be accommodated.

Animation and 3-D programs which produce and export IFF images also work. Examples of these are *Aegis Videoscape, Animator's Apprentice* and *Sculpt-3D.*

This is just a partial list to give you some idea of the large number of programs with which *Pro Page* can work. If you are not sure of a particular program, contact Gold Disk. If anyone knows, it will be them.

The next section discusses the differences between traditional and computerized publishing processes. It also details all aspects of *Pro Page*, from working with boxes and bitmap graphics to drawings, printing, color, design guidelines, typography, and page layout. There is something for everyone here, regardless of previous publishing experience.

The major shortcomings in this area include the incomplete references to compatible printers and a similar vagueness when addressing the issue of color.

Postscript compatibility is mentioned all the time, but nothing is said about dot matrix printers for proof or draft copy production. The so-called printer specifications and connectivity information do little to address the issue, as there is not much to either. It turns out that version 1.0 only works with *Postscript*-compatible laser printers or typesetting machines. This fact is not clearly indicated anywhere—certainly not on the outside of the box to prevent unwary consumers from buying a product they cannot use. and may not be able to return.

Besides the lack of this important information, there is a real need for dot matrix output. Whether you have a laser printer or pay a service bureau for laser printing, you do not want to produce draft copies that way. Why burden your laser with extra copies that tax its duty cycle and accelerate its demise? Likewise, why pay someone to print imperfect copies?

Despite this two-pronged printing oversight, it appears that Gold Disk is genuinely concerned about providing the best, most cost-effective Amiga desktop publishing program around. By the time you read this, version 1.1 should be out; plans are for it to fully support (that means color output too!) a variety of dot matrix printers. The upgrade is to be mailed free to all registered users of 1.0, so send the warranty card in if you haven't already. Apparently consumers have noticed the output oversight and complained.

Now, the color issue. By default the colors are actually nine shades of grey (?). Colorful types have to access a menu sub-item to create a palette of hues from a color database. Not covered in the tutorial, the explanation, along with other useful facts about color, is buried in the manual on pages 84 to 86. Once understood, however, it is a simple matter to produce color text and graphics.

How about some good news? *Pro Page* ties color data to the desired parts of a document, unless black and white mode has been selected. This information is designed to be passed to a separate program, *Professional Color Separator.* With this additional package (not released at the time this review was written), users are supposed to be able to create professional quality four color separations—the kind printers use to produce those glossy ads seen in all the best magazines.

Coming down the manual's home stretch is a concise reference section covering the tools and menus, a series of very useful appendices, a glossary of computer and publishing terms, and an index which makes for quick access to any item in the manual.

The reference section makes exceptional use of screen dumps. The appendices cover everything from trouble-

shooting tips and keyboard equivalents to text formatting instructions and programs which work with *Pro Page*. The glossary demystifies publishing and the index makes using the program even more of a joy.

The Write Stuff

Pro Page is feature-laden, yet it remains uncluttered and easy to use. Besides accepting format/typesetting commands from word processors, it can produce halftones, do kerning, flow text around into multiple boxes, and retain colors for separations. Display colors are described in RGB terms while print colors are described in their traditional Yellow, Cyan, and Magenta terms. It supports a large number of command key alternatives, making it ideal for people that mix their mouse clicks with keystrokes.

A grid can be switched on or off, along with the ability to force drawings, etc., along the grid lines. *Pro Page* accommodates three units of measurement (inches, centimeters, and picas), supports multiple columns, and allows users to predefine an unlimited number of templates which contain the style of a document.

Not Quite the Obits, But...

Aside from the poor printer support, several other items didn't click just right when working with *Pro Page*. For example, clicking on a *Pro Page* file automatically opens the program, but it does not load the file which called the program in the first place.

During the boot process a system requestor appears—asking for the *Pro Page* disk, the very one opened to start the loading process. Clicking on the cancel routine solves the problem. No difficulty here, just an annoying quirk.

When using the text editor, make sure you change the magnification to at least 100%, otherwise you will not be able to find the cursor, see what you are editing, or select a menu with any degree of reliability or certainty. Users following the instructions in the manual can get into trouble because it does not mention anything about leaving the standard display magnification of 33%.

Selecting Alter Box from the menu displays a requestor which identifies the current coordinates of the box. By typing in and accepting different coordinates, you can move the box to the new location without using the mouse-driven "grab" tool. If you enter a set of coordinates which moves the box to the page being laid out (from another area on the page or from the art table), the box disappears. It actually goes beneath the page. You must select the invisible page option to retrieve the missing box.

Despite the wide variety of supported files and applications, there are two items which are not covered, IFF text and text made in Aegis' *Draw Plus* structured drawings.

Postscript

Professional Page works logically—the recommended procedure is to do the layout, add graphics, and flow text. Adjust as needed. By sticking to such solid, basic concepts, Gold Disk has provided an exceptional program with a few eccentricities and only one real defect. Once the program supports a wider array of printers, it will be near unbeatable. Amigaphiles with laser printer access need look no further.

Gold Disk Inc., P.O. Box 789, Streetsville, Ontario, Canada L5M 2C2 (phone: 800-387-8192 or 416-828-0913).

—Ted Salamone

THE CALLIGRAPHER
Interactive SoftWorks
Amiga with 512K
Disk; $100.00

The Calligrapher is an advanced multicolor font editor which introduces a new standard to the Amiga. Instead of making do with the two color (foreground/background) fonts currently available, Amiga desktop publishers, graphic artists, and video mavens can now access or create their own libraries of fonts containing up to 16 colors! We're talking eye-popping text with terrific effects.

The unprotected disk also contains the ancillary programs *FontAssign* and *ColorText*. *FontAssign* is useful in that it tells Amiga software where to look for fonts. It works by allowing Workbench access to the CLI Assign command. *ColorText*, however, is the most important, as it allows certain existing software packages to access ColorFonts, the name for the multicolored fonts made with *The Calligrapher (TC)*.

If a program can download fonts and accept colors, it will accept ColorFonts via the *ColorText* utility. Certain programs, however, fill only accept fixed width fonts—they cannot accommodate proportionally spaced text.

Appetizers

Via *ColorText*, programs such as *DeluxePaint II, Deluxe Video 1.2, Prism, Titlecraft, Publisher 1000, Express Paint, VizaWrite, ProWrite, Aegis Titler, Notepad, FastFonts, SetFont,* and *TV*Text* can join the rainbow parade. There are others, and the list is growing daily.

Programs which accept only fixed width fonts include *Scribble!, Textcraft, CLI, NewCLI, Ed,* and *Emacs*. This is not a complete list, and updates of these programs may make proportional fonts acceptable. Therefore it is best to check before buying, with these or any other programs.

Dessert Before Dinner

While *TC* affords users the ability to design fonts from the ground up, most users will have neither the time nor the inclination to do so. Therefore, the

number of multicolor fonts already available for *TC* is important. The distribution disk, while full of program code, patterns, and styles, still manages to provide a few fonts.

Better news comes from two supplementary disks, *Studio Fonts Volume 1* and *Newsletter Fonts Volume 1*. Neither is copy protected; both come packed with nothing but font after font after font. *Newsletter* has 120 fonts for $30.00. They are primarily Helvetica and Times Roman lookalikes with some headline and outline faces thrown in for good measure. Desktop publishers will find them very useful.

Studio ($35.00) packs some wild stuff, including symbols, pictures, video fonts, and script faces. These are more ingenious and creative, as they are aimed at the electronic media. Either one will keep you busy for a long, long time, especially once you begin modifying them with *The Calligrapher*.

A demo disk that can be freely copied and distributed is available. It runs through *TC's* Edit, Style, Effects, and ColorFont capabilities. While it runs too fast to catch everything on the first pass (forget about taking notes), it is very helpful to just see what can be done. After two or three sessions (each demo runs about 5 minutes) you understand more, and can even follow the mouse clicks.

The Main Course

The Calligrapher needs 512K and Kickstart 1.2 to run. A full meg is recommended to accommodate large fonts and a healthy mix of colors. A full meg is required to access the optional demo disk. Basically, the more memory you have, the greater your options in loading and manipulating color fill patterns, fonts, styles, and effects.

Besides leading edge font handling capabilities, *TC* includes a paint program for individual character edits. The command keys follow *Deluxe Paint II* conventions pretty closely.

This program is so advanced that Commodore has designated ColorFonts as a new type of IFF graphic, and plans to include ColorText as part of AmigaDOS 1.3. Now that's impressive.

Fonts can include 2, 4, 8, or 16 colors, up to a maximum character size of 160 by 256 pixels. The smallest character size is a single pixel. Low, medium, and high resolution fonts are supported, as well as HAM fonts if you also happen to own Impulse's *Prism* HAM editor.

Brushes from paint programs can be converted into fonts, making custom logos and signs a snap. Any image can now be used as a font character.

Instead of tediously working on each character in a font, entire fonts can be manipulated simultaneously (transformation). Colors, patterns, and layers (up to 16) can be added, changed, or deleted at will. A real time review mode lets users play "what if" before applying the changes to a font.

Kerning may be adjusted; spacing (blank space to the right of a character) is affected likewise. Fonts can be refitted (increased in height), italicized, underlined, or resized (horizontal adjustment) individually or en masse.

The Menu

Unlike most other Amiga products, *TC* is not intuitive. To begin with, the program is not one of the more well understood applications—word processor, database, or spreadsheet. *TC* owners will more likely have (or need) an understanding of graphics, publishing (page layout), and/or video production (wipes, transitions, etc.).

Then, the tie-in between each of the program's main functions is not apparent from the order of the menus. There is no online Help.

Last, the manual is difficult to comprehend. Not only are simple things explained in a roundabout manner (the hierarchy of directories, subdirectories, and files for example), but nowhere does the manual explain the interrelationships between the functions. Only by viewing the demos, paying scrupulous attention to the limited tutorials, and using the separate quick reference card was I able to gain a modicum of efficiency with the program. (Because of this, RGB Video Creations has announced *DeluxeHelp for Calligrapher*, a program which we will review as soon as it is released.)

Despite these drawbacks, any time spent learning *The Calligrapher* is time well spent.

And the Lucky Number Is...6

TC contains six screens. Each per-

Continued on page 98

A LAYOUT LEXICON

Here's an explanation of the printer's terms included in the article and those found in *The Calligrapher*. A few more have been included to increase your level of understanding when dealing with video and desktop publishing programs.

Alignment—placement of characters on a straight line.

Ascenders—the lines of lower case type which extend above the body, such as b, d, f, and h.

Baseline—the imaginary line on which the base of letters rests.

Boldface—type heavier than the text type with which it is used.

Calligraphy—handwriting of uniform quality written with a flexible nib point, usually creative or decorative.

Character—any letter, number, punctuation mark, or space in printing.

Descenders—the lines of lower case type which extend below the base line, such as g, j, p, q, and y.

Face—term used to differentiate one style of type from another.

Family—all sizes and weights of a type design.

Font—a complete alphabet of any one typeface in a given point size: upper case, lower case, numerals, punctuation marks, etc.

Italic—letters that slant to the right—sometimes called "oblique."

Kerned Spacing—crowding letters tightly together.

Leading—pronounced "ledding," the term used to indicate the space between lines of type.

Logo—name of company of product, often the symbol or trademark used for identification.

Lowercase—small letters.

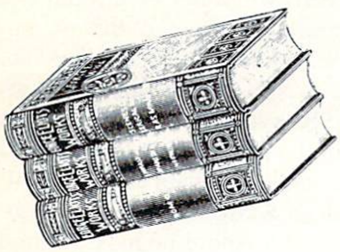
Pica—a unit of measurement, about one sixth of an inch, used to designate the width of a character or line of type.

Point—a unit of measurement to designate height of a letter. One point is one seventy-second of an inch.

Typeface—a particular design of type such as Roman.

Uppercase—capital letters.

A HARD LOOK AT HARD COPY





33 Books for the Amiga

By Richard Herring

Your local bookstores, like mine, are undoubtedly well-stocked with computer titles. But where is the wealth of Amiga-specific books that we all crave?

General bookstores don't carry a good selection of Amiga titles. And my local computer stores often sell their one or two copies as soon as they hit the shelves. So, sometimes sight unseen, I order by title alone, relying on the authors and publishers to read my mind and produce just the book I'm waiting for at that particular moment.

To give you some idea what's out there, here is a list of the books that perch precariously all around (and on) my Amiga. Maybe these descriptions will help you find the book you are looking for. Within categories, they are listed alphabetically by author. All books are softcover, perfect bound (that's the flat spine with the pages glued in), unless otherwise noted. I've tried to point out the volumes that are indispensable, and those that always flop to the bottom of the pile.

COMMODORE REFERENCE MANUALS

These manuals are the grail for many earnest programmers. Almost anything you want to know is here somewhere. You can usually even find it. And sometimes understand it. Obviously written by programmers for programmers.

Amiga Intuition Reference Manual, Addison-Wesley, 1986, 374 pages, $24.95. Intuition is the name for the Amiga's user interface. Whether you want to understand the details of gadgets and requesters, learn how to design screens, or study the stylistic guidelines that help to keep the user interface consistent from one application to the next, this is where you can look. Separate appendices list the Intuition function calls alphabetically and the Intuition Include file.

Amiga ROM Kernal Reference Manual: Exec, Addison-Wesley, 1986, 281 pages, $24.95. The Exec (multitasking executive) functions are described, broken into the following chapters: lists and queues, tasks, messages and ports, input/output, interrupts, memory allocation, libraries, and ROM-Wack. Over half the book is made up of listings of the relevant C include files, and DOS-related topics.

Amiga ROM Kernal Reference Manual: Libraries and Devices, Addison-Wesley, 1986, 1048 pages, $34.95. The Workbench, graphics support routines, floating point math library, and input/output devices are described. The examples included are in C. Appendices include summaries of the Kickstart or ROM routines, C and assembly language Include files, printer-dependent source code and the like. Appendix listings are "UNIX-like."

AmigaDOS User's Manual, AmigaDOS Developer's Manual, and *AmigaDOS Technical Reference Manual,* Commodore-Amiga, 1985. These volumes have been replaced by *The AmigaDOS Manual* from Bantam. Maybe our original copies will become collectors' items.

PROGRAMMING

These books are either about programming on the Amiga generally, or they briefly cover programming in each of several different languages.

COMPUTE!'s First Book of Amiga, COMPUTE! Publications, 1987, 227 pages, $16.95. The first half of this book is comprised of BASIC listings of games and educational programs. The rest of the book is a disjointed series of articles that tutor you on BASIC, DOS, printers, Modula-2, and telecommunication. It reads a lot like a magazine without the ads. Unfortunately, by covering such a broad range of topics, it leaves itself without any specific audience.

Tim Knight, *Amiga Programming Guide,* Que, 1986, 283 pages, $18.95. This book could be a manual for the computer. It starts with hardware setup and moves through the fundamentals of the Workbench. Then it spends 100 pages on BASIC, 30 on LOGO, 45 on C, and another 30 on AmigaDOS. Finally, it gives very brief descriptions of everything from real world uses (applications) to abuses (computer crime). The sections on programming all use a tutorial approach, so this would be a good book for relative novices.

David Lai, *Amiga Developer's Reference Guide,* 2 ed., Pacific Press, 1987, 200 pages, $14.95. This book is simply an index to terms in AmigaDOS. It does not replace other manuals and documentation that provide a full discussion. The book is made up of an alphabetical list of all functions, a list of C macros, a list of Amiga functions, a cross reference to Include files, and a hierarchy diagram of Include files. For the serious or advanced programmer, this is a good resource.

Stephen Levy, ed., *COMPUTE!'s Amiga Programmer's Guide,* COMPUTE! Publications, 1986, 458 pages, $16.95 (spiral bound). This book has individual chapters on pro-

gramming in BASIC, AmigaDOS, C, and machine language. Amiga graphics and sound have separate chapters, using BASIC examples in both cases. The value of the appendices on commands and routines is reduced because many of them describe only selected routines.

Eugene P. Mortimer, *Amiga Programmer's Handbook, Volume 1,* 2 ed., Sybex, 1987, 635 pages, $24.95. Each of the graphics-related functions in the Amiga ROM Kernal is described in the kind of detail needed by serious programmers. For each function, you'll find descriptions of syntax, purpose, and inputs, as well as a description that will help you keep track of why you are where you are, how you got there, and where you're going. Whether you program in C, Modula-2, Pascal, assembler, or BASIC, you should add this book to your library. Personally, I'm anxiously awaiting Volume 2 which will cover the functions of Exec support and hardware Device, as well as the Math, Resource, Debug, DOS, and Expansion libraries.

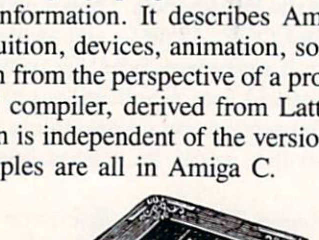


C

Scads of Amiga programmers flock to this language, so you'd better learn what it's all about if you want to be in the know.

John Thomas Berry, *Inside the Amiga,* Howard W. Sams & Co., 1986, 426 pages, $22.95. If you program in C (specifically, the Lattice C compiler), this book is for you. It covers Intuition, multitasking, sprites, sound, speech, and disk files. If you have already been introduced to C on another computer or consider yourself an intermediate level programmer, this will be a good addition to your library. If you're a beginning programmer, you will need a more introductory text.

Robert A. Peck, *Programmer's Guide to the Amiga,* Sybex, 1987, 351 pages, $24.95. This is an intermediate to advanced book on Amiga programming in C, though Pascal and assembly language programmers will also find plenty of valuable information. It describes AmigaDOS, Exec, graphics, Intuition, devices, animation, sound, and multitasking–each from the perspective of a programmer using the Amiga C compiler, derived from Lattice C. Most of the discussion is independent of the version of C you use, but the examples are all in Amiga C.



BASIC

Everybody at least dabbles with BASIC at some point in his computer career. Why? Because it comes "free" with most computers. Also because it is actually a good computer language, both for learning to program and for those little down-and-dirty, one-shot programming tasks that we are all faced with from time to time.

Brian Flynn, *COMPUTE!'s Amiga Applications,* COMPUTE! Publications, 1986, 439 pages, $16.95. This book is a bunch of BASIC programs bound together in one volume. They are broken into categories: games, educational, household, business, science/math, and statistics. Over two dozen listings are included, with brief descriptions of how the programs work. To save you from all that typing, the programs are available on disk for an additional $17.95. But the real value of this book is in entering the programs yourself to learn about BASIC syntax and structure. For the quality and usefulness of the programs themselves, I'd probably put my money into public domain disks instead.

C. Regina, *Elementary Amiga BASIC,* COMPUTE! Publications, 1986, 199 pages, $14.95 (spiral bound). A good introduction to Amiga BASIC, this book starts with how to load the language and works its way through most of the core principles, including arrays, windows, graphics, and speech. There is some emphasis on educational programming throughout the book. About half the book consists of program listings.



GRAPHICS AND SOUND

Many people don't know what else the Amiga is good for. I'm still waiting for the killer book in this category, however. My ideal would have a strong hardware component, give detailed descriptions of feeding one commercial program with the output of another, and include just enough programming to let me build an occasional utility to bridge from one piece of software to another.

Vahe Guzelimian, Norbert K. Kuhnert and Gia L. Rozells, *Becoming an Amiga Artist, An Illustrated Guide to Amiga Graphics, Sound, and Animation,* Scott, Foresman & Co., 1987, 239 pages, $19.95. This book gives instructions on using several popular commercial graphics programs with your Amiga. Then it discusses how to use BASIC for graphics, sound, speech, and animation. It also talks about transferring screen images to paper, film, and videotape. The emphasis is somewhat toward business graphics.

Sheldon Leemon, *Inside Amiga Graphics,* COMPUTE! Publications, 1986, 303 pages, $17.95 (spiral bound). This book is essentially a tutorial, with lots of examples in BASIC and C, for intermediate level programmers. You can learn about the copper, the blitter, and software library functions, as well as how to use sprites and bobs. The last 30 pages is a summary of 71 functions, most from the graphics and intuition libraries.

David Myers, *Amiga User's Guide to Graphics, Sound and Telecommunications,* Bantam, 1987, 239 pages, $18.95. Beginning with a general introduction to the Amiga, Myers moves quickly into the computer's music capabilities using BASIC. Discussions of speech include tone and pitch to get realistic foreign languages. HAM mode is included in the graphics chapter. BASIC is used in the discussion of animation. Online communication is described, and a dumb terminal program listing is included.



AMIGADOS

If you have not explored DOS and the command line interface (CLI), you are missing a passel of your Amiga's power.

The AmigaDOS Manual, 2 ed., Bantam, 1987, 305 pages, $24.95 (spiral bound). If you haven't already, buy this book. I despise the plastic spiral binding that will have you ripping out pages in no time, but the information on those pages is critical to your becoming an Amiga authority. The first half of the book is an introduction to DOS, including details on each command. Both versions 1.1 and 1.2 are covered. This should all have been in the manual that came with the computer. The next fourth of the book tells you how to program using the functions in the AmigaDOS resident library, and how to use the Macro Assembler and the Linker. The last fourth is a technical reference on binary file structures and DOS data structures. The entire second half is appropriate for intermediate to advanced users.

Arlan R. Levitan and Sheldon Leemon, *COMPUTE!'s AmigaDOS Reference Guide,* COMPUTE! Publications, 1986, 231 pages, $16.95 (spiral bound). If you can't load a program other than by the "point and shoot" method, it's time to learn the CLI. This book gives you an introduction, describes how the Amiga handles files and logical devices, tells how to prepare a command or batch file, and presents AmigaDOS's two editors–ED and EDIT. Only the last half of the book is actually the reference guide, alphabetically listing each of the commands. If you're stymied by the CLI, the tutorial approach of the first half may help.

Jeffrey Stanton and Dan Pinal, *Mastering AmigaDOS,* Arrays, 1986, 108 pages, $16.95. This short book begins by comparing AmigaDOS and the Workbench, then it describes the CLI, alphabetically lists CLI commands, and introduces ED and EDIT. A lot of ground is covered quickly, perhaps too quickly for a novice.



WORD PROCESSING

With the introduction of *WordPerfect* for the Amiga, we can raid the bookstores' IBM-compatible shelves. Both of these titles are for *WordPerfect* version 4.2 running under MS-DOS, but the features I checked on the Amiga seemed to be described pretty well. You cannot of course get a feel for the Amiga-specific interface and its use of the mouse. Several similar volumes are available. Let's lobby for Amiga-specific versions.

Eric Alderman and Lawrence J. Magid, *Advanced WordPerfect: Features and Techniques,* 2 ed., Osborne McGraw-Hill, 1987, 319 pages, $18.95. Focusing on features like macros, mailmerge, outlining, indexes, line numbering, and tables of authority, this book is not for the *WordPerfect* novice. It does provide good coverage, but spends some time showing how to integrate *WordPerfect* with IBM-compatible products.

Deborah Beacham and Walton Beacham, *Using WordPerfect,* 3 ed., Que, 1987, 424 pages, $19.95. This is a learning guide to *WordPerfect.* Each chapter covers one aspect of the program in detail and summarizes what you have learned. The first third of the book is aimed at beginners, providing a keystroke-by-keystroke tour through the features discussed. The final chapters describe more advanced features and are suitable for experienced *WordPerfect* users.

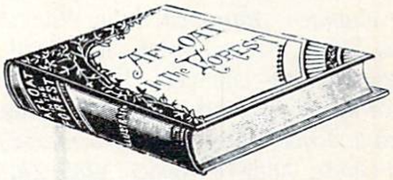


GENERAL INTEREST

Neither of the following is specific to the Amiga, but both make great additions to an Amiga library.

James Gleick, *Chaos, Making a New Science,* Viking, 1987, 352 pages, $19.95 (hardback). If you've played any games sporting fractal graphics or if you have sat in rapt fascination before Thomas Wilcox's Mandelbrot Explorer program, you should read this book. It is a popular account, with just enough mathematics and physics, of how scientists in many fields have been studying the order in apparently random and erratic systems. Imagine how impressed your friends will be when you explain that some spectacular computer graphic is simply a collection of points in the complex plane.

Steve Williams, *Programming the 68000,* 1985, Sybex, 539 pages, $21.95. This book is specific to the Motorola 68000 CPU. It does not mention the Amiga or any of its special chips. If you intend to program in assembly language, however, you will need a book like this. The 68000's architecture and instruction set are detailed. Beginning with the basic concepts of assembly language, the tutorial quickly moves toward the advanced techniques like exception and interrupt programming. A 180 page section is a reference to the 68000 instruction set.



ADVENTURE GAMES

Yes, I'm an adventure game freak. Since the first Scott Adams games on a computer that will remain nameless, I've been hooked. So along comes the Amiga. The graphics are stunning and even the text adventures run at a better pace. Who wants to pay a third of the game's original price for a hint book, good only for that game, when you need only one (or two) hints? Not me. I want maximum hpd (hints

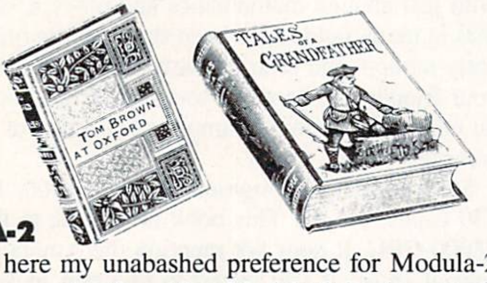
per dollar).

Kim Schuette, *The Book of Adventure Games*, Arrays, 1985, 341 pages, $19.95. Maps are provided for 77 adventure games, 13 of which are available for the Amiga. Each map is coded to the solutions in the back of the book, so if you get stuck in a particular room, you can look up the solution. It's hard to read just the solution you need and not let your eyes stray to the next one, so you may want to have someone read it to you.

Kim Schuette, *The Book of Adventure Games II*, Arrays, 1985, 242 pages, $19.95. In the same format as the first book, only 7 of this book's 45 games are available for the Amiga.

M.K. Simon, *Keys to Solving Computer Adventure Games*, Prentice-Hall, 1987, 286 pages, $12.95. 25 adventure games, at least 11 of which run on the Amiga, are solved. The first section shows a map of all locations in the game and cross-references locations containing puzzles to specific clues in the second section. The second section gives clues to every puzzle but lists them randomly, not grouped by game, so you won't see more than you need. The third section is a step-by-step list of the commands you must enter to complete a game; you'll have finished the game but you won't have played it.

Carl Townsend, *Conquering Adventure Games*, Dilithium Press, 1984, 145 pages. The history of adventure games, general strategies, and design hints. While many games are mentioned, only nine of the older Infocom games that are described run on the Amiga. Coded hints are given for most puzzles, but no step-by-step solutions are included.



MODULA-2

You'll see here my unabashed preference for Modula-2 over C. These, and a few other Modula-2 books, are all on my shelves. None of these are specific to the Amiga, and each of the first three does some comparisons with Pascal. Each of these has a textbook flavor, and none contains a monster alphabetical reference to the various commands in Modula-2.

Gary A. Ford and Richard S. Wiener, *Modula-2, A Software Development Approach*, John Wiley & Sons, 1986, 404 pages, $16.95. A good generic introduction to the Modula-2 programming language. It spends an appropriate amount of space on good programming technique.

Edward J. Joyce, *Modula-2, A Seafarer's Manual and Shipyard Guide*, Addison-Wesley, 1985, 270 pages, $16.95. Joyce gives us a good introductory text for Modula-2. His witty style and cartoons help to break up the tedium of learning the fundamentals of a new language. This is the book I'd choose to start with; plenty of examples, summaries, and problems for you to solve.

Billy K. Walker, *Modula-2, Programming with Data Structures*, Wadsworth Publishing, 1986, 434 pages. Yet a third introductory text to Modula-2, this one is more suitable for programmers with some background. Using a textbook approach, each chapter ends with a summary of important points and exercises for the reader.

Niklaus Wirth, *Programming in Modula-2*, 3 ed., Springer-Verlag, 1985, 202 pages, $20.50 (hardback). Wirth is Modula-2's daddy, so this book seems a natural for the shelf of a Modula-2 programmer. It is written more like a handbook than a tutorial or reference, however, and is a bit too arcane for my taste.



OTHER AMIGA TITLES

I do not own these books, so I can't pronounce them good or bad, but here (in alphabetical order by title) is what second and third hand information I do have.

Michael Boom, *The Amiga: Image, Sound, & Animation on the Commodore Amiga*, Microsoft, 1986, 384 pages, $19.95. With a focus on BASIC, this book explores the graphics and audiovisual capabilities of the Amiga.

The Amiga Handbook, Progressive Publications, 400 pages, $24.95. With detailed descriptions and lots of tables, this book reportedly goes beyond existing documentation.

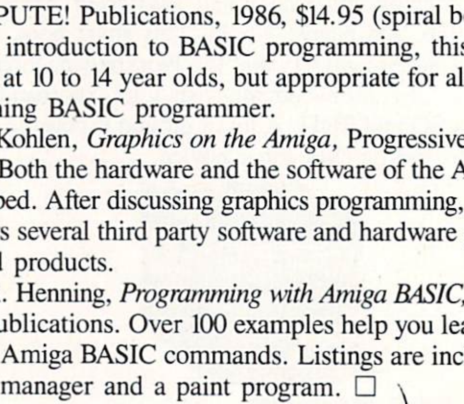
William B. Sanders, *The Amiga Microsoft BASIC Programmer's Guide*, Scott, Foresman & Co., 1986, $19.95. Suitable for beginning and intermediate users, this title uses lots of examples in a step-by-step guide to Microsoft BASIC. Sections are included on multitasking, pulldown menus, and mouse control codes.

Bill Donald, *The Amiga System, An Introduction*, Precision Books, $15.95. This book provides technical information on the Amiga and its operating system.

Edward H. Carlson, *COMPUTE!'s Kids and the Amiga*, COMPUTE! Publications, 1986, $14.95 (spiral bound). A gentle introduction to BASIC programming, this book is aimed at 10 to 14 year olds, but appropriate for almost any beginning BASIC programmer.

M. Kohlen, *Graphics on the Amiga*, Progressive Publications. Both the hardware and the software of the Amiga are described. After discussing graphics programming, the book reviews several third party software and hardware graphics-related products.

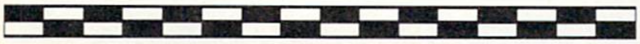
H.R. Henning, *Programming with Amiga BASIC*, Progressive Publications. Over 100 examples help you learn about 200+ Amiga BASIC commands. Listings are included for a file manager and a paint program. ☐



MATRIX PATTERN

Continued from page 18

all the foreground mountains to have a solid fill, and all the background mountains to have a shaded look to them. This will give them the look of being in the distance. First let's create the shading pattern. A good pattern for this would be one in which every other bit is toggled on (one bit on, one bit off). I suggest you use graph paper to design your pattern until you've typed in *Matrix Pattern.* We will design our pattern to be two points or bits high. Our pattern will look like this:



All patterns must be 16 bits wide by a power of 2 high, or 16 x 2^N. We must now convert this to hexadecimal data. The binary number 1010 1010 1010 1010 represents the first line of the pattern; when converted it yields the hexadecimal number AAAA. Each group of four bits from this 16 bit binary number yields the hexadecimal number A. The second line of the pattern gives us the binary number 0101 0101 0101 0101, which is represented as 5555 in hexadecimal (0101 = $5). Let's put this to use. Type in this program segment and run it:

```
PATTERN &HFFFF
DIM pat%(1)
pat%(0) = &HAAAA
pat%(1) = &H5555
PATTERN ,pat%
AREA (50,75) : AREA (150,75)
AREA (150,100) : AREA (50,100)
AREAFILL
```

The program should draw a shaded box on the screen. The first line resets the pattern to its default values clearing any previous values stored. The next three lines create an integer array and assign the values we defined before. The fifth line defines the pattern. Notice that we omitted the (LINE VALUE) in the pattern command since we are using an integer array. The last three lines create a rectangle and fill it in with the shading pattern that we created. Pretty powerful stuff! As you can see, it is very tedious work to produce the pattern desired. You're probably asking yourself why Commodore didn't include a pattern editor on the Amiga Extras disk. Well, never fear, *Pattern Matrix* is here!

Pattern Matrix was designed to help create, edit, and save pattern data statements to the disk. Type in the program from BASIC, and save it to the disk before running it. If there is a bug in the program it could cause the computer to lock up on you. The program lets you edit patterns that are 2, 4, 8, 16, and 32 bits high. After you have entered in the desired height, a blank pattern will appear on the screen. At this point you can use your mouse to select which bits you want on. Simply point the mouse to the box in the pattern and click the left button. The box will turn white to indicate that it has been selected. The program offers several options in the menu. You may reverse the pattern in the matrix if you wish. There is also a flood fill available.

After you have finished editing your pattern, save your data to the disk. The program will create a data file that contains all the data statements from the pattern that you have just edited. Data files will have the filename extension ".pattdata" attached to them so they are easily distinguishable from the other files. To load these data files for the first time, they must be loaded from BASIC. Then save the file back to the disk. You may merge these files to your own programs to create your own customized pattern.

I suggest that you read the Amiga BASIC manual for a further understanding of the PATTERN command. □

Caution! The reader's advisory posted on page 74 applies to the entry of *Matrix Pattern* also! If you're not familiar with Amiga BASIC, we strongly suggest that you review your manual before entering this program!

```
'********************************
'*       Matrix Pattern         *
'*       By Mike Davila         *
'* May 1988 Ahoy!'s AmigaUser   *
'********************************


WINDOW 2,"Matrix Pattern",(0,0)-(630,186),16
GetHeight:
h=0
WHILE h<>2 AND h<>4 AND h<>8 AND h<>16 AND h<>32
  CLS
  INPUT"Enter the pattern's height 2,4,8,16 or 32: ",h
WEND

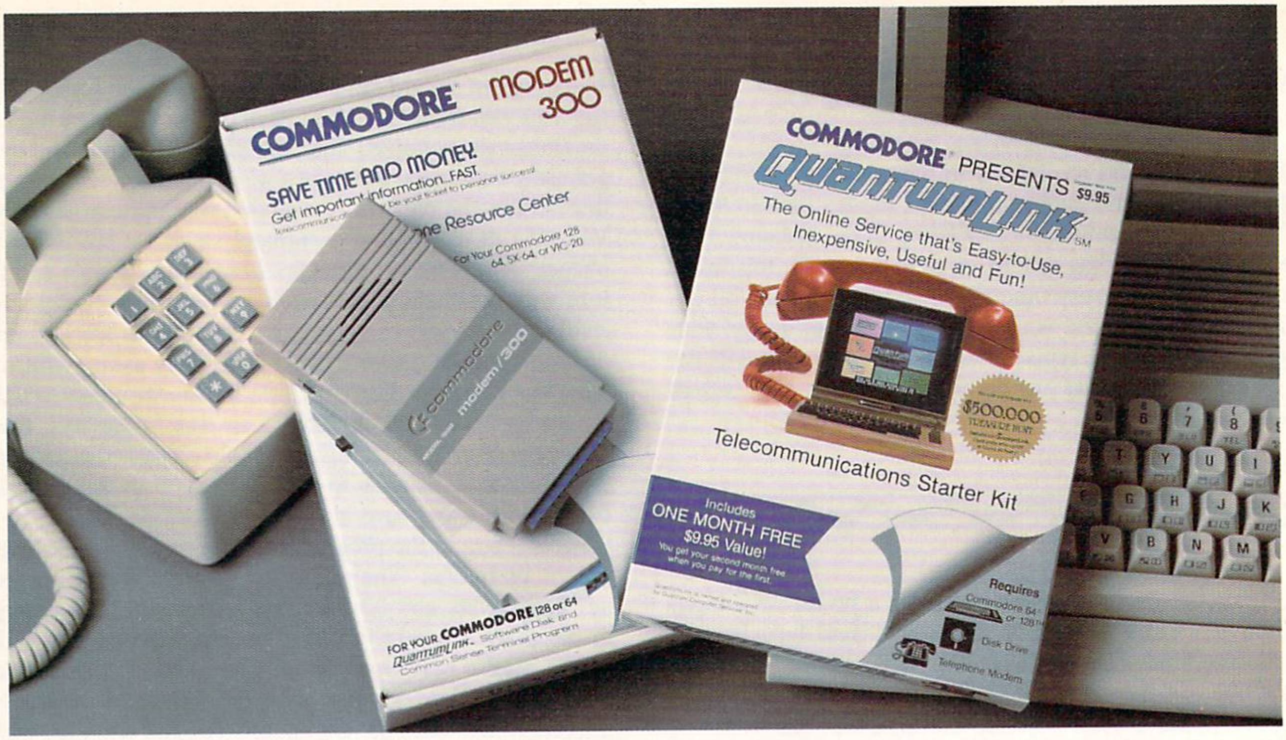
ClearMat:
     CLS
     COLOR 3

'Draw vertical lines
posx = 80 : posy = (5 * h)+20
FOR x = 1 TO 17
   LINE (posx,20)-(posx,posy)
   posx = posx + 30
NEXT x

'Draw horizontal lines
posy=20
FOR y = 1 TO h+1
  LINE (80,posy)-(posx-30,posy)
  posy = posy + 5
NEXT y

'Fill Screen
PAINT (5,10),2,3
Back:
LOCATE 1,25
PRINT"Current matrix size: 16 x"h

'Create Menu
MENU 1,0,1,"Status           "
MENU 1,1,1,"Quit Program     "
MENU 1,2,1,"Restart Program  "
MENU 2,0,1,"PATTERN Options  "
MENU 2,1,1,"Make PATTERN data"
MENU 3,0,1,"Matrix Options"
MENU 3,1,1,"Clear Matrix   "
MENU 3,2,1,"Fill Matrix    "
```



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```
MENU 3,3,1,"Reverse Matrix"
MENU 4,0,0,""

ON MENU GOSUB HandleMenu
MENU ON

WHILE (1=1)
c=1
 x=MOUSE(1) : y=MOUSE(2)
 down = MOUSE(0)
 ps=POINT(x,y)
 IF ps=1 THEN c=0
 IF down AND (ps=1 OR ps=0) THEN PAINT (x,y),c,3
 FOR delay = 1 TO 1000 : NEXT
WEND

HandleMenu:
   MenuNum=MENU(0)
   ItemNum=MENU(1)
   ON MenuNum GOSUB Stat,PatOp,MatOp
RETURN
Stat:
     'Status routine
       ON ItemNum GOSUB Quit,GetHeight
PatOp:
      'Pattern options routine
       ON ItemNum GOSUB MatrixRead
MatOp:
      'Matrix Options routine
       ON ItemNum GOSUB ClearMat,Fillit,Opposite

'Read edited pattern
MatrixRead:
 DIM matrx(16,h)
 LOCATE 1,25
 PRINT"Calculating, please wait... "
 yy = 23
 FOR down = 0 TO h-1
    xx = 100
    FOR across = 0 TO 15
        matrx(across,down) = POINT(xx,yy)
            xx = xx + 30
    NEXT across
    yy = yy + 5
 NEXT down

'Create data
Datamake:
size = ((16*h)/4)-1
DIM NewMat(size)
j=0
FOR down = 0 TO h-1
  FOR across = 0 TO 15
   cnt = cnt + 1
   cell=matrx(across,down)
   cell$="1"
    IF cell=0 THEN cell$="0"
   num$=num$+cell$
    IF cnt=4 THEN
     pow=0
     FOR x = LEN(num$) TO 1 STEP -1
      g$=MID$(num$,x,1) : g=0
       IF g$="1" THEN g=1
      sum=sum+g*(2^pow)
      pow=pow+1
      NEXT x
      NewMat(j)=sum
      j = j + 1
      cnt = 0 : num$ = ""
      cell$ = "" : sum = 0
     END IF
   NEXT across
 NEXT down
 j=0

'Write data file to disk
FileMake:
group = 1 : bit = 1 : jj = 0
WINDOW 3,"Enter the data's filename.",(175,50)-(400,57),2
GetIt:
INPUT file$
CLS
IF file$="" THEN GetIt
 OPEN file$+".pattdata" FOR OUTPUT AS 1
 PRINT#1,""
 PRINT#1,"' Data file for the PATTERN command."
 PRINT#1,"' For use with the AREA and AREAFILL commands."
 PRINT#1,""
 LinSize=9
 IF h>2 THEN LinSize=17
WHILE (jj<=size)
  IF bit = 1 THEN
      PRINT#1,"DATA ";
  END IF
      IF group=1 THEN
         PRINT#1,"&H";
      END IF
  PRINT#1,HEX$(NewMat(jj));
  group = group + 1
  bit = bit + 1
  jj = jj + 1
  IF (group>=5 AND bit<>LinSize) THEN
    group = 1
    PRINT#1,",";
  END IF
  IF bit=LinSize THEN
    bit=1 : group=1
    PRINT#1,""
  END IF
WEND

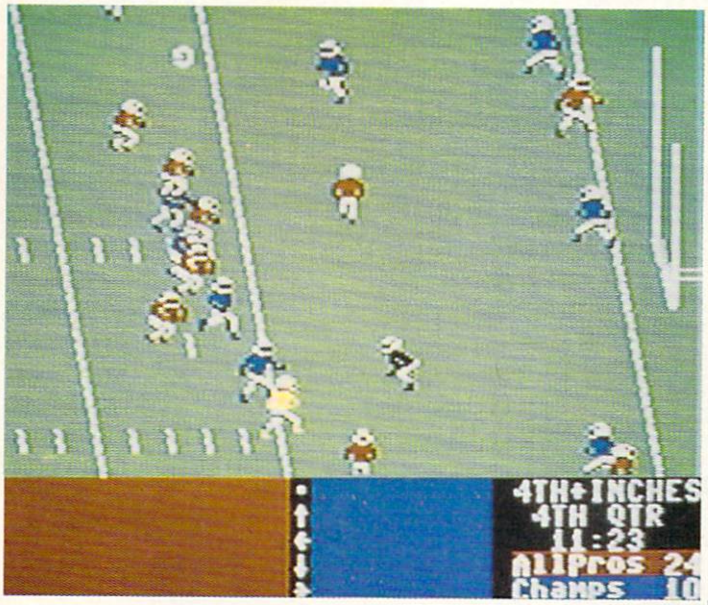
 CLOSE 1
 ERASE matrx
 ERASE NewMat
 WINDOW CLOSE 3
GOTO Back

Fillit:
  flag = 0
 GOTO Around
Opposite:
  flag = 1
 Around:
  yy = 23
  Colr = 1
 FOR down = 0 TO h-1
    xx = 100
    FOR across = 0 TO 15
     IF flag = 1 THEN
      Colr = POINT(xx,yy)
      Colr = Colr XOR 1
     END IF
        PAINT(xx,yy),Colr,3
            xx = xx + 30
    NEXT across
    yy = yy + 5
 NEXT down
GOTO Back:



' Exit program
Quit:
     MENU OFF
     WINDOW CLOSE 2
     WINDOW CLOSE 3
     LIST
     MENU RESET
     END
```

C-64/128 SECTION



4th & Inches *shows the field in 40-yard stretches, from an angled overhead perspective. All available plays and formations are visible onscreen.* *READER SERVICE NO. 254*

4TH & INCHES
Accolade
Commodore 64
Disk; $29.95

Bob Whitehead's *4th & Inches* is a first-rate gridiron complement to Accolade's baseball hit, *Hardball.* It is a fine balance of real-time action and pigskin strategy.

A human coach can compete against either the computer or another human player. A combination of onscreen menus and the joystick controls the electronic athletes in a manner reminiscent of Imagic's *Touchdown.* The Accolade product, however, offers new features, superior graphics, and a wider range of offensive and defensive plays.

Aside from the team rosters, which appear on the Coach's Screen, all pertinent information is available on the Main Display Screen, including the field, offensive and defensive play selection boxes, and a status window. After each play, the select and status windows disappear briefly as the results are displayed.

All available plays and formations are visible onscreen, so compu-coaches only have to touch the joystick to enter strategy. That gives *4th & Inches* a gigantic playability advantage over most other pigskin products.

The Coach's Screen appears at a tap of the space bar. It presents each competitor's height, weight, and experience, though it is hard to imagine how this data is factored into the gameplay.

The players are rated for speed and strength in a rather curious manner: There are eight different speed/strength profiles ranging from small and fast to big and slow. While understandable in game terms, this system doesn't reflect gridiron reality. What about players who are both big and fast? These guys never show up in *4th & Inches,* which detracts from the game's illusion of authenticity.

4th & Inches provides a satisfyingly wide selection of plays and formations. The game offers 11 offensive and five defensive set-ups, 10 running plays, 4 kicking plays, 14 passing plays, and 7 defensive plays.

The field is shown in 40-yard stretches and is viewed from a slightly angled, overhead perspective, as opposed to the two-thirds *Zaxxon*-style viewpoint employed in *Touchdown.* This perspective, along with the vividly drawn field and brightly colored players, helps overcome the "melting" of images when the offensive and defensive lines collide, a problem traditionally associated with non-overhead gridiron displays.

The disk's strongest feature, however, is the option to choose which player to put under direct joystick control. Calling a Safety Blitz is all well and good; actually getting to play the Safety position is a magnitude better!

The only serious weakness in *4th & Inches* is the lack of a true scrolling playfield. Use of a non-scrolling gridiron seriously disrupts the flow of play. Instead of panning smoothly to follow the action, the display irises quickly from scene to scene. These sudden jumps may disorient some users. Watching a game on TV using such video techniques is fine, but it is hard for a gamer to feel in control of events with such an erratic display.

Overall, however, it's hard to complain much about this game. *4th & Inches* is as good as any action-strategy gridiron simulation available for the C-64/128 and, in many ways, it is clearly superior.

Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014 (phone: 408-446-5757). *—Bill Kunkel*

MIGHT AND MAGIC, BOOK ONE: SECRET OF THE INNER SANCTUM
New World Computing/Activision
Commodore 64
Two double-sided disks; $39.95

Is there something about the fantasy roleplaying genre which particularly inspires imitative design work? The non-electronic Dungeons & Dragons, the first game-system, has spawned several hundred competing products which rely on some variant of Dave Arneson and Gary Gygax's creation.

The spirit of me-tooism similarly pervades the software world. *Wizardry, Citadel, Advanced Dungeons & Dragons, The Bard's Tale,* and *Alternate Reality* have more similarities than differences in common.

They all require the computerist to develop strong characters from weak ones. This is accomplished by adventuring in the world of the game. The characters collect treasure and magic items and fight an array of menacing monsters. Generally, there is a long-term plot objective, but free-form exploration is possible.

Jon Van Caneghan's *Might and Magic* is actually an excellent example of the FRP (fantasy role-playing) game category. It has a user-friendly interface, attractive graphics, and a surprise ending.

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DEALERS — WE HAVE THE SUPPORT YOU'RE LOOKING FOR!

The nicest thing about *Might and Magic* is its refreshingly straightforward command control system. This ends the need for constant recourse to the documentation to explain the idiosyncracies of the game-system. Reading the rulebook will certainly help any novice player, but it won't take long to thoroughly master the routine of play.

The visual display dominates the screen. It depicts the dungeons, towns, outdoor terrain, and combat scenes with beautiful color graphics. To the right of this display is a list of available commands (movement, marching order, rest, search, bash, etc.) and spells. It also shows the activation key for each. A window at the bottom of the screen lists each member of the user's party and a brief description of the immediate environment. Situational menus appear when appropriate. If a fight erupts, for example, a menu of tactical options and a list of opponents is displayed.

The proof of the pudding, of course, is in the eating, and this interface is quite tasty. The helpful menus prevent play from lagging, and the striking graphics draw the player into the *Might and Magic* world.

As with all FRP games, *Might and Magic* begins with the creation of the characters who comprise the user's party. Random rolls define each character in terms of intellect, strength, charisma, endurance, speed, accuracy, and luck. Once parameters are set, the user determines their class (Knight, Cleric, Sorcerer, Robber, Paladin, and Archer), race (Human, Elf, Dwarf, Gnome, Half-Orc), alignment (Good, Neutral, Evil), name, and gender. A completed character can be saved to disk and recalled for later use.

The adventure starts when the party leaves the Inn of Sorpigal, the first of five towns which appear in *Might and Magic.* The heroes and heroines must accumulate wealth, weapons, spells, and experience while contesting with orcs, dragons, and the other denizens of the FRP omniverse.

The combat system, while not the most visually prepossessing, works smoothly and efficiently. Tactical options are attack, fight, bribe, retreat, surrender, shoot, cast, use of special objects, and block.

The lack of animation is the game's greatest flaw, especially considering the emphasis the game places on graphics. *Might and Magic* has an unusually large graphics window, but the static nature of these graphics makes the game look like an illustrated adventure. The user never sees a door open, an opponent attack, or a trap spring. It's a little disappointing to walk through a large onscreen door, spring a trap which catapults several large spikes directly at your party, and still see the same closed door on the monitor.

Otherwise, *Might and Magic* compares favorably with other FRP titles for the C-64. Those who are tired of waiting for new scenarios for their current favorite FRP will find that *Might and Magic* offers instant relief from those gaming blues.

New World Computing, Inc., P.O. Box 2068, Van Nuys, CA 91404 (distributed by Activision).

—Bill Kunkel and Arnie Katz

SUPER GRAPHIX GOLD

Xetec, Inc.
C-64/128, Plus/4, VIC 20
Hardware; $99.95

Whether it's old gold or new gold or Super Graphix Gold, we'll take gold every time. Super Graphix Gold is a third generation printer interface from Xetec. In the world of Commodore computers the printer interface serves several functions. Its fundamental task is to provide a hardware link between Commodore's proprietary serial port and the Centronics style parallel port favored by most printer makers. The printer interface's secondary task is the translation of Commodore's character codes (which we fondly refer to as PETSCII) to the universally understood ASCII.

On a higher level, the graphics interface will also provide total emulation of the Commodore 1525 printer. Although the 1525 (and its workalikes the MPS-801 and MPS-803) is obsolete by today's standards, its operating modes are deeply rooted in the C-64's software library. There are many currently available C-64 products which only recognize the existence of the 1525 printer.

Super Graphix Gold goes far beyond the mundane tasks of interfacing and emulation. Its numerous features make it easy to bring out the best in your dot matrix printer. Super Graphix Gold is also the first interface we have seen which takes advantage of the high speed serial port data transfer modes which are available on the C-128 computer, the 1571 disk drive, and the 1581 disk drive.

The Hardware

Super Graphix Gold is housed in an all-metal enclosure with fully shielded input and output cables. This electrically and magnetically shielded design earns Super Graphix Gold its FCC certification. Power is obtained from a battery eliminator style wall plug power supply rated at 9 volts DC and 200 milliamperes. This is converted to 5 volts by an onboard regulator. We measured the total current drain at well under 100 milliamperes. In view of this minimal power requirement, it is possible to power the interface from the host computer or the associated printer. The manual describes a simple hardware modification which will power the interface from pin 18 of your printer. However, the modification requires a single solder connection which will void the interface's warranty.

As with other intelligent peripherals, Super Graphix Gold has its own 8 bit microprocessor running at 4 MHz with its operating system in 32 kilobytes of ROM. There is also 32 kilobytes of RAM work space, which is used as a data buffer and for font storage. The interface's "keyboard" is composed of 16 miniature DIP switches and a pair of pushbuttons. The "display" consists of a single light emitting diode (LED) and of course the printer itself. Mass storage is provided by the host computer and the disk drive. As we shall shortly see, the interface is able to directly access the disk drive on its own. In effect Super Graphix Gold is a complete microcomputer.

Operation

Super Graphix Gold has a double row of DIP switches of which the top row deals with the characteristics of the associated printer. Four of these switches are devoted to printer selection. Of the 16 possible combinations, 13 are presently implemented. A fifth switch identifies the carriage width as 80 or 132 columns, effectively doubling the number of possible printers.

Two of the switches determine just how the interface deals with carriage returns (CHR$(13)) and linefeeds (CHR$(10)). One of the four possible settings will actually strip all linefeeds, when accompanied by a carriage return, from the incoming data stream. This feature can be very handy for processing files downloaded from other computers. The last switch in this bank chooses between serial port devices four or five.

The second row of DIP switches deals with the interface's operating features. Three of these switches are devoted to the selection of the eight operating modes. The basic mode is of course total emulation of the 1525 printer. Naturally, a dot matrix printer is required to generate the unique Commodore character set.

The Gold mode also emulates the 1525 printer with many additional features. These include the program listing modes which translate the Commodore graphics characters and commands into mnemonics or keystroke combinations. In this mode the interface intelligently interprets escape codes, acting upon those which apply

to the 1525 and passing on the rest. Additional escape codes may be intercepted depending on whether fonts are active. The actual interpretation of escape codes depends on the selected printer.

Two monitor modes are provided for analyzing and debugging printer driver routines. These modes print only the numerical values of all data which is sent to the interface. These two modes let you choose between a hexadecimal or a decimal printout.

Three degrees of transparency are provided. In the ASCII conversion mode only PETSCII to ASCII conversion takes place. Most other features are turned off except for the fonts and the command channel. This mode can be useful for CP/M on the C-128. In the semi-transparent mode only the fonts are still available. In transparent mode all data is passed on to the printer without any changes, and fonts are not available. Note that the linefeed and carriage return switches function independently of the three transparent modes. This still leaves you the option of stripping linefeeds from carriage returns when required.

Of the five remaining switches, four deal with font selection, which we discuss in detail below. The fifth switch selects enhanced operation. In enhanced operation the interface will use the printer's high density graphics capabilities when emulating the 1525's graphics modes, and for printing the Commodore graphics characters. The tradeoff is speed versus appearance. With the switch on, the interface goes for a better look whenever possible. With the switch off, the interface opts for speed. Turning on both the enhance and font switches results in all Commodore emulation printing in near letter quality mode.

The remaining switches are a pair of finger-size clear and reset pushbuttons. Used individually, they clear the buffer or reset the interface button without removing any downloaded fonts or pictures. The clear button will also print a status report if held down for one second. Using both buttons will reset the interface to power up conditions, as well as the printer. The reset button on the computer does not normally affect the status of the interface. A simple hardware modification is described in the manual which will let the interface accept a reset from the computer as well.

Fonts Galore

Near letter quality (NLQ) modes are the latest fad to hit the printer market. Virtually every recent printer model has some form of built-in NLQ capability. Super Graphix Gold takes NLQ mode one step further. It provides the user with fingertip selection from a variety of NLQ fonts. The actual quality of the fonts is strongly dependent on your printer. The best results will be obtained with printers which support quad density, 240 dot per inch, bit mapped graphics.

The three font selection switches let you choose from eight fonts. Four of these fonts are built into the interface and are always available. Note that all of Super Graphix Gold's operating switches are always active. Thus any changes you make are immediately acted upon. The remaining four fonts may be downloaded to the interface from disk. Fonts come in two varieties, normal fonts which are based on a 9 by 16 dot matrix and superfonts which are based of an 18 by 16 dot matrix.

All fonts support a variety of special effects which include bold, italic, expand, compress, double height, four pitches (10, 11, 12, and 13 cpi), proportional spacing, superscript, and subscripts. Underlining appears below the descenders where it belongs. The fonts are also equipped with alternate characters for international use. These replace character codes 35, 36, 64, 91, 92, 93, 94, 95, 96, 123, 124, 125, and 126 as appropriate. The supported nationalities are USA/Commodore, France, Germany, England, Denmark (two flavors), Sweden, Italy, Spain, and Norway.

In general, all these special effects are available with every font. By comparison, the Hot Shot Plus, which we looked at in January, requires a separate font for italic and bold. If we consider italic, bold, and double height as separate fonts, then Super Graphix Gold actually has 16 built-in fonts with room for 16 additional user fonts.

Super Graphix Gold is supplied with a utility disk which also includes 18 additional normal fonts, 8 super fonts, and 1 super font for creating borders. The collection includes foreign language fonts which have unique character sets like Arabic, Greek, Hebrew, and Russian. The disk contains two font creation programs, one for the C-64's 40 column display and the other for the C-128's 80 column display. The font creation programs are well-designed, with provisions for modifying

existing fonts, onscreen previewing, and test printouts.

Two font conversion programs are also supplied. The first program provides for upward compatibility by converting fonts in the Xetec Super Graphix format to the Gold's format. In a not unexpected turnabout, the second program converts fonts from the Hot Shot Plus format to the Gold format. As we mentioned in January, Omnitronix had provided a similar conversion program to import Xetec's fonts for use by their interface.

Controlling the Gold

Super Graphix Gold may be controlled in several ways. We have already shown the use of the hardware switches for accessing the major functions. The interface also responds to escape codes, over 20 secondary addresses, and a command channel. The command channel uses secondary address 15 and functions very much like the disk drive command channel. The command channel is also used to read any error conditions which are signalled by the blinking of the interface's light emitting diode (LED). The LED can also be used to gauge the rate of data transmission to the interface.



Inside Super Graphix Gold lurks (left to right) 32K of ROM, 32K of RAM, and an 8 bit 6303 microprocessor. The 5V regulator is at upper left. Switch settings are clearly labeled on the cover.
READER SERVICE NO. 255

Secondary address number 14 is the interface's banner channel. A text string sent to this channel prints out sideways with letters 8" high. Any font may be used, and all font effects are available. You have the option of automatically smoothing out the letters in banner mode.

The ability of the interface to change its escape codes to correspond to the selected printer makes it very easy to use it with your word processor. Many word processors use configuration files for different printers. Simply hook up Super Graphix Gold, and your existing word processor can immediately access all the fonts and features in the same way as the ones built into your printer. There is no need to redefine your word processor's printer configuration file.

Downloading the Disk

As we mentioned above, Super Graphix Gold has the ability to directly access the disk drive. By simply issuing the proper command over the command channel, the interface can be in-

duced to automatically read the disk directory and print it out. Once the command is issued, the computer is not involved in the process at all and is free to carry on with other tasks. The only limitation is that the computer and interface must not try to access the serial port at the same time.

In a similar fashion Super Graphix Gold can pull text files off the disk and print them out. Images can also be automatically printed if they are in 40 or 80 column Commodore bit map format (320 by 200 or 640 by 200 pixels) without color data. The interface will actually treat the first 8000 or 16,000 bytes of file data as bit map when the graphic dump command is used. Images may be printed with a variety of effects and in several sizes. Images may also be stored in the interface's buffer and overlayed with text.

The download technique is also used to send user fonts to the interface. Simply issue the command and the interface gets the font from the disk.

This is the Xetec Super Graphix Gold
This is the Xetec Super Graphix Gold
This is the Xetec Super Graphix Gold
This is the Xetec Super Graphix Gold

This is the Xetec Super Graphix Gold printing using a Downloaded font

This is the Xetec Super Graphix Gold printing using a Downloaded font

THIS IS THE XETEC SUPER GRAPHIX GOLD PRINTING USING A DOWNLOADED FONT

LO HELLO HELLO HELLO HELLO HELLO HELLO HELLO HELLO HE
HELLO HELLO HELLO HELLO HELLO HELLO HELLO HELLO HELLO HELLO HELL
ELLO HELLO HELLO HELLO HEL
HELLO HELLO HELLO HELLO HELL
O HELLO HELLO HELLO HELLO HELL
HELLO HELLO HELLO HELLO HELLO HELL

Shown are actual-size samples of some of Super Graphix Gold's various fonts, printed on a Gemini 10X. The top four are the interface's built-in typefaces, followed by three downloaded fonts and an assortment of some of the styles and sizes available.

Speed

Super Graphix Gold is the fastest interface we have seen. It even comes with a demonstration program to prove it. We found that it was able to drive our Gemini 10X at full speed under all conditions. It will also accept data from the computer at standard C-64 speed, fast C-128 speed, and at burst speed from the C-128. The only problem is finding software which believes in an interface that can accept data at burst speeds and acts accordingly. For your own programs, Xetec has provided a solution. A burst driver is included on the utility disk for use with the C-128.

When downloading, the interface will automatically check the disk drive and switch to the fastest possible operating mode. This holds true for the 1571 and the 1581 disk drives.

Conclusion

Xetec's years of experience with Commodore printer interface design shines through in Super Graphic Gold. Its range of built-in features will make it easy to wring the very last dot out of your dot matrix printer. Its compatibility with existing printer codes makes it easy to integrate into your system. If you are in the market for a new printer interface, go for the Gold.

Xetec, Inc., 2804 Arnold Road, Salina, KS 67401 (phone: 913-827-0685).

—Morton Kevelson

COIL COP
Epyx Software
Commodore 64
Disk; $19.95

Another entry in Epyx's Maxx Out! series of fast action arcade games, *Coil Cop* has so many good points that it's hard to know where to begin. The music is great, approaching the quality of those classy demos you see floating around in the public domain all the time. The graphics are extremely good and the animation is crisp and smooth. The title screen alone is a delight for the eyes and ears.

The premise of *Coil Cop* is that you are a spring-driven, law-enforcing toy police officer inside a toy factory gone completely berserk in the hands of an evil, malfunctioning computer. Your mission is to locate the different pieces of the computer's lost program and fix the factory.

Coil Cop is one of those games where so much is going on at once you might as well fold your arms and die quickly for the first two or three plays. Once you get the hang of it, you're going to find that there is a lot going on indeed in this hysterical toy factory.

There are all sorts of flippers to flip,

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buttons to push, elevators to ride, heat currents to float on, and transit tubes that send you whizzing around the plant like a golf ball shot through a water hose. I found myself laughing crazily after a few moments just at the sheer enormity of the onscreen frenzy! It must've put a strain on the programmers, even at the 1 MHZ speed of the 6502 microprocessor, to keep all this goofy nonsense going on at the same time.

There are plenty of kooky friends and foes, as well as traps, slaps, and snaps...and whatever you do, don't let your springs run out of oil! It's fortunate that the game is so good humored that you never really take it all that seriously when you lose—because you lose a *lot*.

I played the game for about two hours and could not win it, but I doubt if our readers will find it as difficult as I did. Mostly the game requires patience and good recall in order to find all the missing pieces and restore the computer to working order.

Having reviewed several games in the Maxx Out series, I am astounded at their great variation in style and content. Not one of them is anything less than a feast for the eyes—it's only the playability that varies from program to program.

If you are looking for one more quality arcade game for your 64 or 128, *Coil Cop* is certainly recommended.

Epyx, Inc., 600 Galveston Drive, P.O. Box 8020, Redwood City, CA 94063 (phone: 415-366-0606).

—Cleveland M. Blakemore

Continued from page 80

forms a separate function; some optional, others absolutely necessary for any font work.

From the Font screen users create, load, change, save, and view fonts. Multiple fonts can be loaded simultaneously, limited only by amount of available RAM. The number of colors and characters to be included in the font, as well as its height, are designated here. The width and fixed or proportional spacing are also specified from this screen. This is a relatively intuitive screen.

The Select screen displays font characters which can be chosen for color, pattern, or other mass transformations. An entire font, a few characters, or a single character can be chosen here. Just mouseclick, hold, and roll. The selected characters are reverse imaged, awaiting transformation.

TC's Edit screen mimics standard paint programs in that it provides brushes, freehand drawing, line drawing (dotted and smooth), ellipses and rectangles (solid and hollow), arcs, a magnify mode, zoom, and undo. Color fill, brush rotation, and flips, and the ability to alter the 16 color palette, fill out its major features. No one at EA has to worry about this eating *DP II's* lunch, but that is not its intent. Its intent is to edit fonts, and for that it cannot be beat. If you know how to use other Amiga paint/art programs, you already know how to use this one.

Nothing, however, will prepare you for the Effects screen. Individual characters are acted upon here. Kerning, spacing, underlining, slanting (italicizing), and color changes are accomplished through this vehicle. The height and width of a character can also be changed here. A good deal of attention must be paid to this function, as it lies at the very heart of font editing and creation.

Style is a fun screen, almost a cross between Edit and Effects. Styles are created and stored separately from fonts—this way a particular style can be applied to multiple fonts or portions of multiple fonts.

Styles can have from 1 to 16 layers, each layer having one color or pattern associated with it. Each layer can be any of 16 different sizes. By mixing layers and sizes with various colors and patterns, almost anything can be created. Offset layers for even wilder effects; combine different patterns to provide that MTV effect. Except for pressing the spacebar to toggle between colors and patterns, this one is easy to learn and use.

The last screen, Patterns, makes it easy to import and manipulate graphic images. These can be converted into brushes; likewise, brushes can be converted into patterns. Patterns can be arranged horizontally, vertically, randomly altered (up to 4 random patterns are supported), or tiled across the screen in up to 9 non-overlapping windows. All this is accomplished via gadgets, self-explanatory after the first use.

It's Not Over Until the Fat Font...

Program-wide functions include the ability to check on the amount of RAM available. Below 20K free, problems (of an undisclosed nature) may occur. Owners of 512K machines will find the Workbench is not normally accessible. a means of saving another 35K. With 1 meg or better Workbench can be opened, making background jobs a possibility.

Function keys make it easy to move between the six screens. The system status and two palette functions (edit and copy) are available via these keys.

Fontasizing!

The Calligrapher, like other pioneers, can be easily misunderstood. It takes some time to master, is not for everyone, and comes at a time when there are already plenty of disk fonts available. Why spend a C note?

Why? Because the program is worth its weight in gold. It is a good design, well-executed. It provides features not available anywhere else; and I cannot think of a better way to make the most of all the Amiga fonts cropping up.

While the learning curve is steeper than for most Amiga programs (and I already know the layout and printer's lingo—see sidebar on page 80), the rewards are nothing short of phenomenal. The program is well-behaved; it bears the mark of quality.

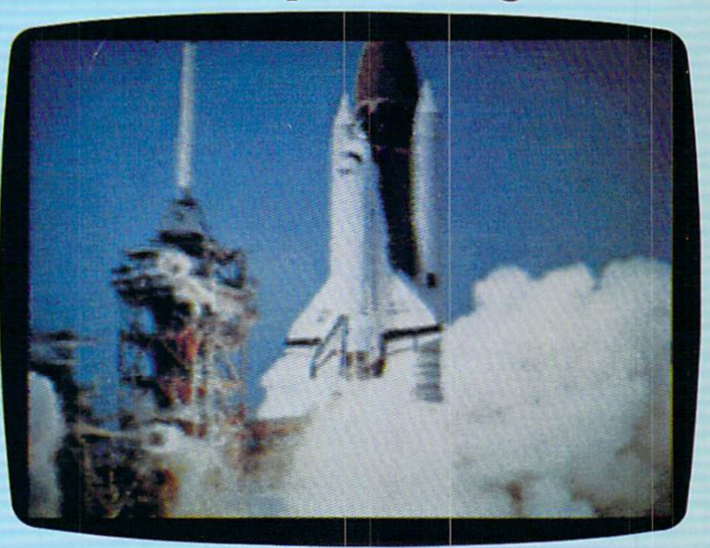
Interactive SoftWorks, 57 Post Street, San Francisco, CA 94104 (phone: 415-956-2660).

—Ted Salamone

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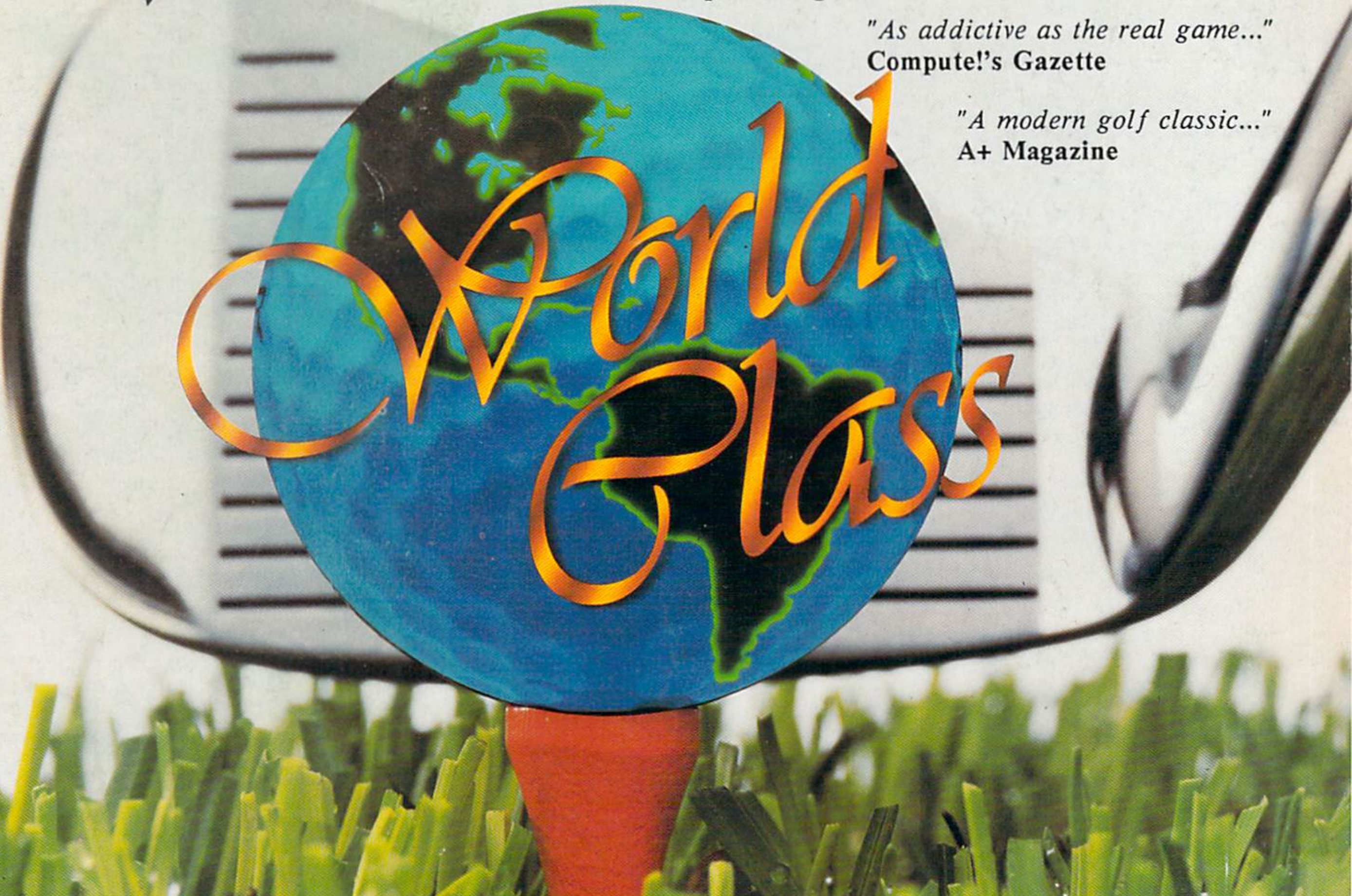
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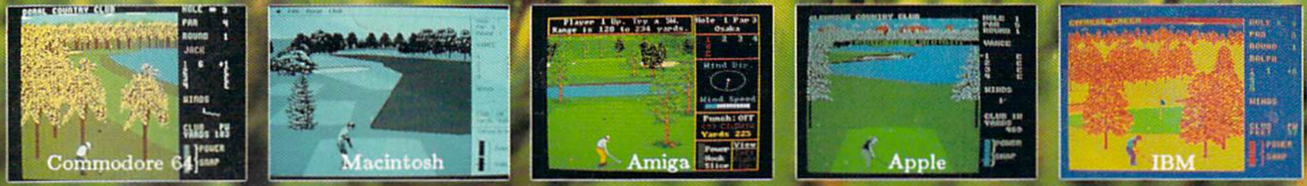
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